#### Note remarks

Refer to Service Info for test and adjustment instructions. See microcard(s) W400/...

Edition Test oil : 17.11.97

: ISO 4113

Combination No. : 0 402 074 700

Injection pump

Pump designation : PES4P110B720RS3383

EP type number : 0 412 014 701

**Governor** 

Governer design. : RSV300...1100P1A667

6overner no. : 0 421 833 582

Cust. part No. : 9880216

Customer-spec. information

Customer : LIEBHERR Motor : D 924 TI-E A2

Power KW : 149.0

# TEST BENCH REQUIREMENTS

Inlet line : 4.1

Test oil inlet

temp. °C

: +- 2.0

Tolerance °C

Overflow valve : 1 417 413 049

Inlet press. bar : 1.5

: + 0.1 Tolerance bar

Tolerance l/h: + 10.0

Test nozzle holde

: 1 688 901 101 assembly

Opening pressure

: 207.0 bar

Tolerance bar : **←** 1.5

Test lines : 1 680 750 008

AC1

Outside diameter : 6.0

x inside diameter: 2.0

: 600 x length mm

REMARKS

(A) INJECTION PUMP SETTING VALUES

Set equal delivery quant.

per values \_\_\_\_\_

BEGINNING OF DELIVERY

Test pressure bar :

Tolerance bar : + 1.0

Prestroke mm 3.20 : +- 0.05 Tolerance mm

Check

tolerance mm

: + 0.10

Rack travel in mm: 10.50

: **←** 1.50 Tolerance mm

Firing order : 4-2-1-3

Phasing : 0-90-180-270

Tolerance : +- 0.50

Check

tolerance \*NW : + 0.75

Start of delivery mark

: +- 0.10 Tolerance

Check

tolerance °NW : +- 0.75

Barrel no. : 4

BASIC SETTING

Rated speed rpm : 880

Rack travel in mm: 13.85

: **←** 0.05 Tolerance mm

Del. quantity cm3/1000 strokes : 203.0	Aneroid pressure hPa : 1500
Tolerance	Del. quantity cm3/1000 strokes : 203.0
Check tolerance	Tolerance cm3/1000 strokes : +- 1.0 Check tolerance
cm3/1000s. : + 3.5	cm3/1000s. : + 3.5 Spreed
Spreed + Tolerance +	Tolerance cm3/1000 strokes : 4.0 Check tolerance
cm3/1000 strokes : 4.0	cm3/1000s. : 7.5
Check tolerance cm3/1000s. : 7.5	CONTROL LEVER
	control lever
Rated speed rpm : 500	position degree : 99.0 tolerance degree : + 4.0
Rack travel in mm: 4.60 + Tolerance mm: + 0.10 +	RATED SPEED
Del. quantity	rack travel mm : 12.85
cm3/1000 strokes : 24.0 +	Rated speed rpm : 920 Tolerance 1/min : + 5
cm3/1000 strokes : + 3.0 + Check tolerance +	rack travel mm : 4.00
cm3/1000s. : +- 5.5	Rated speed rpm : 980
Spreed + Tolerance +	Tolerance 1/min : + 15
cm3/1000 strokes : 4.5 + Check tolerance	rack travel mm : 0.85 Tolerance mm : + 0.55
cm3/1000s. : 7.5	Rated speed rpm : 1200
(B) SETTING OF INJECTION PUMP WITH GOVERNOR	rack travel mm : 4.00 Rated speed rpm : 1000 Tolerance 1/min : + 15
GUIDE SLEEVE POSITION	LOUITNIE
Ţ.,	LOW IDLE
control lever position degree : -3 Rated speed rpm : 800	control lever position degree : 80.0 tolerance degree : + 4.0
Rack travel in mm: 0.50 Tolerance mm: + 0.20	Setting point w/out bumper spring
governor spring	Rated speed rpm : 500
pre-tension	rack travel mm : 2.80 Tolerance mm : + 0.10
FULL LOAD DELIVERY AT FULL LOAD STOP	Testing:
Rated speed rpm : 880	Rated speed rpm : 500 rack travel mm : 4.60
+	Tolerance mm : +- 0.10

	Ŧ
TORQUE CONTROL Rated speed rpm : 880 rack travel mm : 13.85 Tolerance mm : + 0.05	† † † †
Rated speed rpm : 500 rack travel mm : 13.90 Tolerance mm : + 0.10	<u> </u>
Rated speed rpm : 700 rack travel mm : 13.90 Tolerance mm : + 0.10	+
ANEROID/ALTITUDE COMPENSATOR TEST	† † †
SETTING	Ŧ
Rated speed rpm : 550 Pressure hPa : 1500 rack travel mm : 13.85 Tolerance mm : + 0.10	† † † †
Rated speed rpm : 550 Pressure hPa : - rack travel mm : 11.25 Tolerance mm : + 0.20	† † † †
MEASUREMENT	‡
Rated speed rpm : 550	Ŧ
Pressure hPa : 830 rack travel mm : 13.20 Tolerance mm : + 0.05	<b>‡</b>
Pressure hPa : 750 rack travel mm : 12.10 Tolerance mm : + 0.20	† † † †
FUEL DELIVERY CHARACTERISTICS	‡
Aneroid pressure hPa : 1500	Ī
Rated speed rpm : 500 Del. quantity cm3/1000 strokes : 225.0	+
Tolerance cm3/1000 strokes : + 3.0	‡

Aneroid pressure hPa : 1500 Rated speed rpm : 700 rack travel mm : 13.90 Tolerance mm : + 0.10 Del. quantity cm3/1000 strokes : 214.0 Tolerance cm3/1000 strokes : + 3.0 Check tolerance cm3/1000 strokes : + 6.0  Aneroid pressure hPa : - Rated speed rpm : 550 Del. quantity cm3/1000 strokes : 170.0 Tolerance cm3/1000 strokes : + 1.0 Check tolerance cm3/1000 strokes : + 1.0 Check tolerance cm3/1000 strokes : + 1.0  STARTING FUEL DELIVERY  Rated speed rpm : 100 rack travel mm : 20.50 Tolerance mm : + 0.50 Del. quantity cm3/1000 strokes : 150.0 Tolerance cm3/1000 strokes : + 15.0 Check tolerance cm3/1000 strokes : + 15.0 Check tolerance cm3/1000 strokes : + 19.0  LOW IDLE  Rated speed rpm : 500  Rack travel in mm : 4.60 Tolerance mm : + 0.10 Del. quantity cm3/1000 strokes : 24.0 Tolerance cm3/1000 strokes : 24.0 Tolerance cm3/1000 strokes : + 3.0	Check tolerance cm3/1000s.	: <del>+</del> 6.0
Aneroid pressure hPa : Rated speed rpm : 550 Del. quantity cm3/1000 strokes : 170.0 Tolerance cm3/1000 strokes : +- 1.0 Check tolerance cm3/1000s. : +- 3.5  STARTING FUEL DELIVERY  Rated speed rpm : 100 rack travel mm : 20.50 Tolerance mm : +- 0.50 Del. quantity cm3/1000 strokes : 150.0 Tolerance cm3/1000 strokes : +- 15.0 Check tolerance cm3/1000s. : +- 19.0  LOW IDLE  Rated speed rpm : 500  Rack travel in mm : 4.60 Tolerance mm : +- 0.10 Del. quantity cm3/1000 strokes : 24.0 Tolerance	hPa Rated speed rpm rack travel mm Tolerance mm Del. quantity cm3/1000 strokes Tolerance cm3/1000 strokes	: 700 : 13.90 : + 0.10 : 214.0
hPa Rated speed rpm : 550  Del. quantity cm3/1000 strokes : 170.0  Tolerance cm3/1000 strokes : + 1.0  Check tolerance cm3/1000s. : + 3.5   STARTING FUEL DELIVERY  Rated speed rpm : 100 rack travel mm : 20.50  Tolerance mm : + 0.50  Del. quantity cm3/1000 strokes : 150.0  Tolerance cm3/1000 strokes : + 15.0  Check tolerance cm3/1000s. : + 19.0  LOW IDLE  Rated speed rpm : 4.60 Tolerance mm : + 0.10  Del. quantity cm3/1000 strokes : 24.0  Tolerance		: + 6.0
Del. quantity cm3/1000 strokes : 170.0 Tolerance cm3/1000 strokes : + 1.0 Check tolerance cm3/1000s. : + 3.5  STARTING FUEL DELIVERY  Rated speed rpm : 100 rack travel mm : 20.50 Tolerance mm : + 0.50 Del. quantity cm3/1000 strokes : 150.0 Tolerance cm3/1000 strokes : + 15.0 Check tolerance cm3/1000s. : + 19.0  LOW IDLE  Rated speed rpm : 500  Rack travel in mm : 4.60 Tolerance mm : + 0.10 Del. quantity cm3/1000 strokes : 24.0 Tolerance	hPa	: -
cm3/1000 strokes : + 1.0 Check tolerance cm3/1000s. : + 3.5  STARTING FUEL DELIVERY  Rated speed rpm : 100 rack travel mm : 20.50 Tolerance mm : + 0.50 Del. quantity cm3/1000 strokes : 150.0 Tolerance cm3/1000 strokes : + 15.0 Check tolerance cm3/1000s. : + 19.0  LOW IDLE  Rated speed rpm : 500  Rack travel in mm : 4.60 Tolerance mm : + 0.10 Del. quantity cm3/1000 strokes : 24.0 Tolerance	Del. quantity cm3/1000 strokes	
cm3/1000s. : + 3.5  STARTING FUEL DELIVERY  Rated speed rpm : 100 rack travel mm : 20.50 Tolerance mm : + 0.50 Del. quantity cm3/1000 strokes : 150.0 Tolerance cm3/1000 strokes : + 15.0 Check tolerance cm3/1000s. : + 19.0  LOW IDLE  Rated speed rpm : 500  Rack travel in mm : 4.60 Tolerance mm : + 0.10 Del. quantity cm3/1000 strokes : 24.0 Tolerance	cm3/1000 strokes	: +- 1.0
Rated speed rpm : 100 rack travel mm : 20.50 Tolerance mm : + 0.50 Del. quantity cm3/1000 strokes : 150.0 Tolerance cm3/1000 strokes : + 15.0 Check tolerance cm3/1000s. : + 19.0  LOW IDLE Rated speed rpm : 500 Rack travel in mm : 4.60 Tolerance mm : + 0.10 Del. quantity cm3/1000 strokes : 24.0 Tolerance	cm3/1000s.	: <del>+</del> 3.5
rack travel mm : 20.50 Tolerance mm : + 0.50 Del. quantity cm3/1000 strokes : 150.0 Tolerance cm3/1000 strokes : + 15.0 Check tolerance cm3/1000s. : + 19.0  LOW IDLE  Rated speed rpm : 500  Rack travel in mm : 4.60 Tolerance mm : + 0.10 Del. quantity cm3/1000 strokes : 24.0 Tolerance	STARTING FUEL DEL	IVERY
cm3/1000 strokes : 150.0 Tolerance cm3/1000 strokes : + 15.0 Check tolerance cm3/1000s. : + 19.0  LOW IDLE  Rated speed rpm : 500  Rack travel in mm : 4.60 Tolerance mm : + 0.10 Del. quantity cm3/1000 strokes : 24.0 Tolerance	rack travel mm Tolerance mm	: 20.50
Check tolerance cm3/1000s. : + 19.0  LOW IDLE  Rated speed rpm : 500  Rack travel in mm : 4.60 Tolerance mm : + 0.10 Del. quantity cm3/1000 strokes : 24.0 Tolerance	cm3/1000 strokes Tolerance	
Rated speed rpm : 500  Rack travel in mm : 4.60  Tolerance mm : + 0.10  Del. quantity cm3/1000 strokes : 24.0  Tolerance	Check tolerance	
Rack travel in mm : 4.60 Tolerance mm : + 0.10 Del. quantity cm3/1000 strokes : 24.0 Tolerance	LOW IDLE	<del> </del>
Tolerance mm : + 0.10 Del. quantity cm3/1000 strokes : 24.0 Tolerance	Rated speed rpm	: 500
Tolerance	Tolerance mm Del. quantity	: + 0.10
Check tolerance cm3/1000s. : +- 5.5 Spreed	cm3/1000s.	: +- 5.5
Tolerance cm3/1000 strokes : 4.5	Tolerance	: 4.5

Check tolerance cm3/1000s.	:	7.5

#### Note remarks

Refer to Service Info for test and adjustment instructions. See microcard(s) W400/...

Edition Test oil

: 13.11.97 : ISO 4113

Combination No. : 0 402 646 617

Injection pump

Pump designation : PE6P130A320RS7282 EP type number : 0 412 636 825

Governor .

Governer design. : RQV300...900PA1059

Governer no. : 0 421 814 049

Cust. part No. : 865851-P08 V.09.97

Customer-spec. information Customer : PENTA

: TAD 1230 P Motor

## TEST BENCH REQUIREMENTS

Inlet line : 3.1

Vibration demoer

(RoBo diaphragm) : 4.2

Test oil inlet

40 temo. °C Tolerance °C 2.0

Overflow valve : 2 417 413 077

Inlet press. bar : 1.5 Tolerance bar : + 0.1

Test nozzle holde

: 1 688 901 105 assembly

Opening pressure

: 208.5 bar Tolerance bar : + 1.5 Test Lines : 1 680 750 089

Outside diameter : 8.0

3.0 x inside diameter :

x length mm : 600

#### REMARKS

(A) INJECTION PUMP SETTING VALUES

Set equal delivery quant.

per values \_\_\_\_

# BEGINNING OF DELIVERY

Test pressure bar : Tolerance bar : + 1.0

Prestroke mm : 4.05 Tolerance mm : + 0.05

Check

tolerance mm : + 0.10

Rack travel in mm : 8.30 Tolerance mm :  $\leftarrow$  0.50

Firing order : 1-5-3-6-2-

Phasing : 0-60-120-180-240

: -300

Tolerance : + 0.50

Check

: + 0.75tolerance \*NW

Start of delivery mark

Tolerance : **←** 0.50

Check

tolerance \*NW : + 0.75

Barrel no. : 1

## BASIC SETTING

Rated speed rpm : 700

	+
Rack travel in mm : 11.55	Rated speed rpm : 315
Tolerance mm : +- 0.05	+ guide sleeve + travel mm : 1.98
Del. quantity	+ Tolerance mm : + 0.25
cm3/1000 strokes : 349.0	Total and in the last
	Rated speed rpm : 365
Tolerance	guide sleeve
cm3/1000 strokes : +- 1.5	+ travel mm : 2.54
	+ Tolerance mm : + 0.25
Check tolerance	† 2.4.4
$cm3/1000s.$ : $\leftarrow$ 5.0	+ Rated speed rpm : 420
Spreed	+ guide sleeve + travel mm : 3.17
opi eeu	+ Tolerance mm : + 0.25
Tolerance	Total area man
cm3/1000 strokes : 7.0	+ Rated speed rpm : 1210
	+ guide sleeve
Check tolerance	† travel mm : 11.50
cm3/1000s. : 11.0	+ Tolerance mm : + 0.50
	†
	GUIDE SLEEVE POSITION
Rated speed rpm : 300	GOIDE SEEEVE POSITION
	+
Rack travel in mm : 4.00	+ control lever
Tolerance mm : +- 0.10	→ position degree : -1
Del. quantity	+ Rated speed rpm : 980
cm3/1000 strokes : 23.0	t
Tolerance	+ Rack travel in mm: 16.50
$cm3/1000$ strokes : $\leftarrow$ 3.0	+ Tolerance mm : + 1.30
Check tolerance	†
cm3/1000s. : +- 6.0	FILL LOAD DELTWEDY AT FILL LOAD STOR
cm3/1000s. : +- 6.0 Spreed	FULL LOAD DELIVERY AT FULL LOAD STOP
cm3/1000s. : +- 6.0 Spreed Tolerance	+
cm3/1000s. : +- 6.0 Spreed Tolerance cm3/1000 strokes : 7.0	+ Rated speed rpm : 700
cm3/1000s. : +- 6.0 Spreed Tolerance	+
cm3/1000s. : +- 6.0 Spreed Tolerance cm3/1000 strokes : 7.0 Check tolerance	Rated speed rpm : 700 Aneroid pressure hPa : 2000 Del. quantity
cm3/1000s. : +- 6.0 Spreed Tolerance cm3/1000 strokes : 7.0 Check tolerance cm3/1000s. : 11.0	Rated speed rpm : 700 Aneroid pressure hPa : 2000 Del. quantity cm3/1000 strokes : 349.0
cm3/1000s. : +- 6.0 Spreed Tolerance cm3/1000 strokes : 7.0 Check tolerance cm3/1000s. : 11.0  (B) SETTING OF INJECTION PUMP	Rated speed rpm : 700 Aneroid pressure hPa : 2000 Del. quantity cm3/1000 strokes : 349.0 Tolerance
cm3/1000s. : +- 6.0 Spreed Tolerance cm3/1000 strokes : 7.0 Check tolerance cm3/1000s. : 11.0	Rated speed rpm : 700 Aneroid pressure HPa : 2000 Del. quantity cm3/1000 strokes : 349.0 Tolerance cm3/1000 strokes : +- 1.5
cm3/1000s. : +- 6.0 Spreed Tolerance cm3/1000 strokes : 7.0 Check tolerance cm3/1000s. : 11.0  (B) SETTING OF INJECTION PUMP	Rated speed rpm : 700 Aneroid pressure hPa : 2000 Del. quantity cm3/1000 strokes : 349.0 Tolerance cm3/1000 strokes : + 1.5 Check tolerance
cm3/1000s. : +- 6.0 Spreed Tolerance cm3/1000 strokes : 7.0 Check tolerance cm3/1000s. : 11.0  (B) SETTING OF INJECTION PUMP WITH GOVERNOR	Rated speed rpm : 700 Aneroid pressure hPa : 2000 Del. quantity cm3/1000 strokes : 349.0 Tolerance cm3/1000 strokes : +- 1.5 Check tolerance cm3/1000s. : +- 5.0
cm3/1000s. : +- 6.0 Spreed Tolerance cm3/1000 strokes : 7.0 Check tolerance cm3/1000s. : 11.0  (B) SETTING OF INJECTION PUMP	Rated speed rpm : 700  Aneroid pressure  hPa : 2000  Del. quantity  cm3/1000 strokes : 349.0  Tolerance  cm3/1000 strokes : + 1.5  Check tolerance  cm3/1000s. : + 5.0  Spreed
cm3/1000s. : +- 6.0 Spreed Tolerance cm3/1000 strokes : 7.0 Check tolerance cm3/1000s. : 11.0  (B) SETTING OF INJECTION PUMP WITH GOVERNOR  GUIDE SLEEVE TRAVEL	Rated speed rpm : 700  Aneroid pressure  hPa : 2000  Del. quantity  cm3/1000 strokes : 349.0  Tolerance  cm3/1000 strokes : + 1.5  Check tolerance  cm3/1000s. : + 5.0  Spreed  Tolerance
cm3/1000s. : +- 6.0  Spreed  Tolerance cm3/1000 strokes : 7.0  Check tolerance cm3/1000s. : 11.0  (B) SETTING OF INJECTION PUMP WITH GOVERNOR  GUIDE SLEEVE TRAVEL  Rated speed rpm : 928	Rated speed rpm : 700  Aneroid pressure  hPa : 2000  Del. quantity  cm3/1000 strokes : 349.0  Tolerance  cm3/1000 strokes : + 1.5  Check tolerance  cm3/1000s. : + 5.0  Spreed
cm3/1000s. : +- 6.0 Spreed Tolerance cm3/1000 strokes : 7.0 Check tolerance cm3/1000s. : 11.0  (B) SETTING OF INJECTION PUMP WITH GOVERNOR  GUIDE SLEEVE TRAVEL	Rated speed rpm : 700 Aneroid pressure hPa : 2000 Del. quantity cm3/1000 strokes : 349.0 Tolerance cm3/1000 strokes : + 1.5 Check tolerance cm3/1000s. : + 5.0 Spreed Tolerance cm3/1000 strokes : 7.0
cm3/1000s. : +- 6.0  Spreed  Tolerance cm3/1000 strokes : 7.0  Check tolerance cm3/1000s. : 11.0  (B) SETTING OF INJECTION PUMP WITH GOVERNOR  GUIDE SLEEVE TRAVEL  Rated speed rpm : 928 guide sleeve	Rated speed rpm : 700  Aneroid pressure  hPa : 2000  Del. quantity  cm3/1000 strokes : 349.0  Tolerance  cm3/1000 strokes : + 1.5  Check tolerance  cm3/1000s. : + 5.0  Spreed  Tolerance  cm3/1000 strokes : 7.0  Check tolerance
Cm3/1000s. : +- 6.0  Spreed  Tolerance  cm3/1000 strokes : 7.0  Check tolerance  cm3/1000s. : 11.0  (B) SETTING OF INJECTION PUMP WITH GOVERNOR  GUIDE SLEEVE TRAVEL  Rated speed rpm : 928  guide sleeve  travel mm : 7.72  Tolerance mm : + 0.25	Rated speed rpm : 700  Aneroid pressure  hPa : 2000  Del. quantity  cm3/1000 strokes : 349.0  Tolerance  cm3/1000 strokes : + 1.5  Check tolerance  cm3/1000s. : + 5.0  Spreed  Tolerance  cm3/1000 strokes : 7.0  Check tolerance
Cm3/1000s. : +- 6.0  Spreed  Tolerance cm3/1000 strokes : 7.0  Check tolerance cm3/1000s. : 11.0  (B) SETTING OF INJECTION PUMP WITH GOVERNOR  GUIDE SLEEVE TRAVEL  Rated speed rpm : 928 guide sleeve travel mm : 7.72 Tolerance mm : + 0.25  Rated speed rpm : 300	Rated speed rpm : 700  Aneroid pressure  hPa : 2000  Del. quantity  cm3/1000 strokes : 349.0  Tolerance  cm3/1000s trokes : + 1.5  Check tolerance  cm3/1000s. : + 5.0  Spreed  Tolerance  cm3/1000 strokes : 7.0  Check tolerance  cm3/1000 strokes : 7.0
Cm3/1000s. : +- 6.0  Spreed  Tolerance cm3/1000 strokes : 7.0  Check tolerance cm3/1000s. : 11.0  (B) SETTING OF INJECTION PUMP WITH GOVERNOR  GUIDE SLEEVE TRAVEL  Rated speed rpm : 928 guide sleeve travel mm : 7.72 Tolerance mm : + 0.25  Rated speed rpm : 300 guide sleeve	Rated speed rpm : 700  Aneroid pressure  hPa : 2000  Del. quantity  cm3/1000 strokes : 349.0  Tolerance  cm3/1000 strokes : + 1.5  Check tolerance  cm3/1000s. : + 5.0  Spreed  Tolerance  cm3/1000 strokes : 7.0  Check tolerance
Cm3/1000s. : +- 6.0  Spreed  Tolerance cm3/1000 strokes : 7.0  Check tolerance cm3/1000s. : 11.0  (B) SETTING OF INJECTION PUMP WITH GOVERNOR  GUIDE SLEEVE TRAVEL  Rated speed rpm : 928 guide sleeve travel mm : 7.72 Tolerance mm : + 0.25  Rated speed rpm : 300 guide sleeve travel mm : 1.81	Rated speed rpm : 700  Aneroid pressure  hPa : 2000  Del. quantity  cm3/1000 strokes : 349.0  Tolerance  cm3/1000s trokes : + 1.5  Check tolerance  cm3/1000s. : + 5.0  Spreed  Tolerance  cm3/1000 strokes : 7.0  Check tolerance  cm3/1000s. : 11.0
Cm3/1000s. : +- 6.0  Spreed  Tolerance cm3/1000 strokes : 7.0  Check tolerance cm3/1000s. : 11.0  (B) SETTING OF INJECTION PUMP WITH GOVERNOR  GUIDE SLEEVE TRAVEL  Rated speed rpm : 928 guide sleeve travel mm : 7.72 Tolerance mm : + 0.25  Rated speed rpm : 300 guide sleeve	Rated speed rpm : 700  Aneroid pressure  hPa : 2000  Del. quantity  cm3/1000 strokes : 349.0  Tolerance  cm3/1000strokes : + 1.5  Check tolerance  cm3/1000s. : + 5.0  Spreed  Tolerance  cm3/1000 strokes : 7.0  Check tolerance  cm3/1000s. : 11.0
Cm3/1000s. : + 6.0  Spreed  Tolerance  cm3/1000 strokes : 7.0  Check tolerance  cm3/1000s. : 11.0  (B) SETTING OF INJECTION PUMP WITH GOVERNOR  GUIDE SLEEVE TRAVEL  Rated speed rpm : 928  guide sleeve  travel mm : 7.72  Tolerance mm : 40.25  Rated speed rpm : 300  guide sleeve  travel mm : 1.81  Tolerance mm : + 0.25	Rated speed rpm : 700  Aneroid pressure hPa : 2000  Del. quantity cm3/1000 strokes : 349.0  Tolerance cm3/1000strokes : + 1.5 Check tolerance cm3/1000s. : + 5.0 Spreed Tolerance cm3/1000 strokes : 7.0 Check tolerance cm3/1000s. : 11.0  CONTROL LEVER  control lever position degree : 61.0
cm3/1000s. : + 6.0  Spreed  Tolerance cm3/1000 strokes : 7.0 Check tolerance cm3/1000s. : 11.0  (B) SETTING OF INJECTION PUMP WITH GOVERNOR  GUIDE SLEEVE TRAVEL  Rated speed rpm : 928 guide sleeve travel mm : 7.72 Tolerance mm : 40.25  Rated speed rpm : 300 guide sleeve travel mm : 1.81 Tolerance mm : + 0.25  Rated speed rpm : 650	Rated speed rpm : 700  Aneroid pressure  hPa : 2000  Del. quantity  cm3/1000 strokes : 349.0  Tolerance  cm3/1000strokes : + 1.5  Check tolerance  cm3/1000s. : + 5.0  Spreed  Tolerance  cm3/1000 strokes : 7.0  Check tolerance  cm3/1000s. : 11.0
Cm3/1000s. : + 6.0  Spreed  Tolerance  cm3/1000 strokes : 7.0  Check tolerance  cm3/1000s. : 11.0  (B) SETTING OF INJECTION PUMP WITH GOVERNOR  GUIDE SLEEVE TRAVEL  Rated speed rpm : 928  guide sleeve  travel mm : 7.72  Tolerance mm : 40.25  Rated speed rpm : 300  guide sleeve  travel mm : 1.81  Tolerance mm : + 0.25	Rated speed rpm : 700  Aneroid pressure  hPa : 2000  Del. quantity  cm3/1000 strokes : 349.0  Tolerance  cm3/1000s. : + 1.5  Check tolerance  cm3/1000s. : + 5.0  Spreed  Tolerance  cm3/1000 strokes : 7.0  Check tolerance  cm3/1000s. : 11.0  CONTROL LEVER  control lever  position degree : 61.0  tolerance degree : + 4.0  control lever
Cm3/1000s. : + 6.0  Spreed  Tolerance  cm3/1000 strokes : 7.0  Check tolerance  cm3/1000s. : 11.0  (B) SETTING OF INJECTION PUMP WITH GOVERNOR  GUIDE SLEEVE TRAVEL  Rated speed rpm : 928  guide sleeve  travel mm : 7.72  Tolerance mm : 40.25  Rated speed rpm : 300  guide sleeve  travel mm : 1.81  Tolerance mm : + 0.25  Rated speed rpm : 650  guide sleeve	Rated speed rpm : 700  Aneroid pressure  hPa : 2000  Del. quantity  cm3/1000 strokes : 349.0  Tolerance  cm3/1000strokes : + 1.5  Check tolerance  cm3/1000s. : + 5.0  Spreed  Tolerance  cm3/1000 strokes : 7.0  Check tolerance  cm3/1000s. : 11.0  CONTROL LEVER  control lever  position degree : 61.0  tolerance degree : + 4.0

tolerance degree	: <b>←</b> 4.0	+ rack travel mm : 8.30 + Tolerance mm : + 0.10
RATED SPEED rack travel mm	: 10.50	MEASUREMENT
Rated speed rpm Tolerance 1/min	: 915 : + 5	Rated speed rpm : 500
rack travel mma Rated speed rpma	: 4.00 : 1000	Pressure hPa : 1420 rack travel mm : 3.00
Tolerance 1/min		rack travel mm : 3.00 Tolerance mm : + 0.20
rack travel mm	: 0.50 : + 0.50	Pressure hPa : 640 rack travel mm : 0.25
Tolerance mma Rated speed rpm	: 1100	Tolerance mm : + 0.05
		FILE DEL TUEDY CHARACTERIOTER
LOW IDLE		FUEL DELIVERY CHARACTERISTICS
control lever		Aneroid pressure
position degree	: 74.0	Rated speed rpm : 700
tolerance degree	: <b>←</b> 4.0	+ Del. quantity
		cm3/1000 strokes : 230.0
control lever position degree	• 18.0	+ Tolerance + cm3/1000 strokes : +- 1.5
tolerance degree	: +- 4.0	Check tolerance
Testing:		cm3/1000s. : +- 5.0
		+
Rated speed rpm	: 300	†
rack travel mm Tolerance mm	: 4.00 : + 0.10	Ī
		1.00
rack travel mm Rated speed rom	: > 5.60 : 200	LOW IDLE
Rated speed rpm	: 200	LOW IDLE Rated speed rpm : 300
rack travel mma Rated speed rpma Rated speed rpm	: 200	Rated speed rpm : 300 Rack travel in mm : 4.00
Rated speed rpm Rated speed rpm	: 200	Rated speed rpm : 300  Rack travel in mm : 4.00  Tolerance nm : + 0.10
Rated speed rpm Rated speed rpm TORQUE CONTROL	: 200 : 365	Rated speed rpm : 300  Rack travel in mm : 4.00  Tolerance nm : + 0.10  Del. quantity
Rated speed rpm Rated speed rpm TORQUE CONTROL Rated speed rpm	: 200 : 365 : 700	Rated speed rpm : 300  Rack travel in mm : 4.00  Tolerance nm : + 0.10
Rated speed rpm Rated speed rpm TORQUE CONTROL	: 200 : 365 : 700	Rated speed rpm : 300  Rack travel in mm : 4.00 Tolerance nm : + 0.10 Del. quantity cm3/1000 strokes : 23.0 Tolerance cm3/1000 strokes : + 3.0
Rated speed rpm Rated speed rpm TORQUE CONTROL Rated speed rpm rack travel mm Tolerance mm	: 200 : 365 : 700 : 11.55 : + 0.05	Rated speed rpm : 300  Rack travel in mm : 4.00  Tolerance nm : + 0.10  Del. quantity  cm3/1000 strokes : 23.0  Tolerance  cm3/1000 strokes : + 3.0  Check tolerance  cm3/1000s. : + 6.0
Rated speed rpm  Rated speed rpm  TORQUE CONTROL Rated speed rpm rack travel mm Tolerance mm  ANEROID/ALTITUDE	: 200 : 365 : 700 : 11.55 : + 0.05	Rated speed rpm : 300  Rack travel in mm : 4.00 Tolerance mm : + 0.10 Del. quantity cm3/1000 strokes : 23.0 Tolerance cm3/1000 strokes : + 3.0 Check tolerance cm3/1000S. : + 6.0 Spreed
Rated speed rpm Rated speed rpm TORQUE CONTROL Rated speed rpm rack travel mm Tolerance mm	: 200 : 365 : 700 : 11.55 : + 0.05	Rated speed rpm : 300  Rack travel in mm : 4.00 Tolerance mm : + 0.10 Del. quantity cm3/1000 strokes : 23.0 Tolerance cm3/1000 strokes : + 3.0 Check tolerance cm3/1000s. : + 6.0 Spreed Tolerance
Rated speed rpm  Rated speed rpm  TORQUE CONTROL Rated speed rpm rack travel mm Tolerance mm  ANEROID/ALTITUDE	: 200 : 365 : 700 : 11.55 : + 0.05	Rated speed rpm : 300  Rack travel in mm : 4.00 Tolerance mm : + 0.10 Del. quantity cm3/1000 strokes : 23.0 Tolerance cm3/1000 strokes : + 3.0 Check tolerance cm3/1000s. : + 6.0 Spreed Tolerance cm3/1000 strokes : 7.0
Rated speed rpm  Rated speed rpm  TORQUE CONTROL Rated speed rpm rack travel mm Tolerance mm  ANEROID/ALTITUDE	: 200 : 365 : 700 : 11.55 : + 0.05	Rated speed rpm : 300  Rack travel in mm : 4.00 Tolerance mm : + 0.10 Del. quantity cm3/1000 strokes : 23.0 Tolerance cm3/1000 strokes : + 3.0 Check tolerance cm3/1000s. : + 6.0 Spreed Tolerance
Rated speed rpm  Rated speed rpm  TORQUE CONTROL Rated speed rpm rack travel mm Tolerance mm  ANEROID/ALTITUDE COMPENSATOR TEST	: 200 : 365 : 700 : 11.55 : ← 0.05	Rated speed rpm : 300  Rack travel in mm : 4.00 Tolerance mm : + 0.10 Del. quantity cm3/1000 strokes : 23.0 Tolerance cm3/1000 strokes : + 3.0 Check tolerance cm3/1000s. : + 6.0 Spreed Tolerance cm3/1000 strokes : 7.0 Check tolerance
Rated speed rpm  Rated speed rpm  TORQUE CONTROL Rated speed rpm rack travel mm Tolerance mm  ANEROID/ALTITUDE COMPENSATOR TEST  SETTING  Rated speed rpm Pressure hPa	: 200 : 365 : 700 : 11.55 : + 0.05	Rated speed rpm : 300  Rack travel in mm : 4.00 Tolerance mm : + 0.10 Del. quantity cm3/1000 strokes : 23.0 Tolerance cm3/1000 strokes : + 3.0 Check tolerance cm3/1000s. : + 6.0 Spreed Tolerance cm3/1000 strokes : 7.0 Check tolerance
Rated speed rpm  Rated speed rpm  TORQUE CONTROL Rated speed rpm rack travel mm Tolerance mm  ANEROID/ALTITUDE COMPENSATOR TEST  SETTING  Rated speed rpm Pressure hPa rack travel mm	: 200 : 365 : 700 : 11.55 : + 0.05 : 500 : 2000 : 11.55	Rated speed rpm : 300  Rack travel in mm : 4.00 Tolerance mm : + 0.10 Del. quantity cm3/1000 strokes : 23.0 Tolerance cm3/1000 strokes : + 3.0 Check tolerance cm3/1000s. : + 6.0 Spreed Tolerance cm3/1000 strokes : 7.0 Check tolerance
Rated speed rpm  Rated speed rpm  TORQUE CONTROL Rated speed rpm rack travel mm Tolerance mm  ANEROID/ALTITUDE COMPENSATOR TEST  SETTING  Rated speed rpm Pressure hPa	: 200 : 365 : 700 : 11.55 : + 0.05	Rated speed rpm : 300  Rack travel in mm : 4.00 Tolerance mm : + 0.10 Del. quantity cm3/1000 strokes : 23.0 Tolerance cm3/1000 strokes : + 3.0 Check tolerance cm3/1000s. : + 6.0 Spreed Tolerance cm3/1000 strokes : 7.0 Check tolerance cm3/1000s. : 11.0
Rated speed rpm  Rated speed rpm  TORQUE CONTROL Rated speed rpm rack travel mm Tolerance mm  ANEROID/ALTITUDE COMPENSATOR TEST  SETTING  Rated speed rpm Pressure hPa rack travel mm	: 200 : 365 : 700 : 11.55 : ← 0.05 : 500 : 2000 : 11.55 : ← 0.05	Rated speed rpm : 300  Rack travel in mm : 4.00 Tolerance nm : + 0.10 Del. quantity cm3/1000 strokes : 23.0 Tolerance cm3/1000 strokes : + 3.0 Check tolerance cm3/1000s. : + 6.0 Spreed Tolerance cm3/1000 strokes : 7.0 Check tolerance

#### Note remarks

Refer to Service Info for test and adjustment instructions. See microcard(s) W400/...

Edition : 17.11.97 Test oil : ISO 4113

Combination No. : 0 402 646 700

Injection pump

Pump designation : PE6P12DA320LS7917 EP type number : 0 412 626 972

6overnor

Governer design. : RQV350...1050PA1366

Governer no. : 0 421 814 204

Cust. part No. : 0270744002

Customer—spec. information Customer : MB-NFZ Motor : OM401 LA Power KW : 230.0

#### TEST BENCH REQUIREMENTS

Inlet line : 3.1

Test oil inlet

temp. °C : 40
Tolerance °C : + 2.0

Overflow valve : 1 417 413 047

Inlet press. bar : 2.0
Tolerance bar : + 0.1

Overflow quantity

min. l/h : 120 Tolerance l/h : + 10.0

Test nozzle holde

assembly : 1 688 901 105

Opening pressure

bar : 208.5 Tolerance bar : + 1.5 Test lines : 1 680 750 075

Outside diameter : 8.0

x inside diameter: 3.0

x length mm : 1000

#### **REMARKS**

(A) INJECTION PUMP SETTING VALUES

Set equal delivery quant.

per values \_\_\_\_\_

# BEGINNING OF DELIVERY

Test pressure bar : 26.9
Tolerance bar : + 1.0

Prestroke mm : 5.25
Tolerance mm : + 0.05
Check

tolerance mm

: ← 0.10

Rack travel in mm : 20.50 Tolerance mm : + 0.50

Firing order : 6-3-5-2-4-

: 1

Phasing : 0-60-120-180-240

: -300 Tolerance : +- 0.50

Check

tolerance  $^{\circ}NW$  :  $\leftarrow$  0.75

Start of delivery mark

Tolerance : + 0.10

Check

tolerance \*NW : + 0.75

Barrel no. : 6

## BASIC SETTING

Rated speed rpm : 1050

		1
Rack travel in man	: 14.40	Rated speed rpm : 570
Tolerance mm		guide sleeve
		+ travel mm : 3.57
Del. quantity		Tolerance mm : + 0.25
cm3/1000 strokes	: 218.0	†
<b>T.1</b>		Rated speed rpm : 1204
Tolerance cm3/1000 strokes	10	+ guide sleeve + travel mm : 10.00
CBS/ 1000 Strokes	: 1.0	+ travel mm : 10.00 + Tolerance mm : + 0.25
Check tolerance		T Toter ante man . 1 = 0.25
cm3/1000s.	: +- 4.0	Rated speed rpm : 1300
		+ guide sleeve
Spreed		+ travel mm : 11.50
		+ Tolerance mm : + 0.50
Tolerance		†
cm3/1000 strokes	: 5.0	CUTAE CLEENE BOOTTON
Check tolerance		GUIDE SLEEVE POSITION
cm3/1000s.	: 9.0	I
UM2/ 10000 6	. ,.0	T control lever
		position degree : - 1
		+ Rated speed rpm : 1160
Rated speed rpm	: 350	+
	F 00	+ Rack travel in mm : 13.40
Rack travel in m		+ Tolerance mm : + 1.30
Tolerance mm	: + 0.10	†
Del. quantity cm3/1000 strokes	: 19.0	FULL LOAD DELIVERY AT FULL LOAD STOP
Tolerance	. 17.0	TOLE COND DELIVERY AT TOLE COND STOP
cm3/1000 strokes	: <b>←</b> 3.0	Rated speed rpm : 1050
Check tolerance		+ Aneroid pressure
cm3/1000s.	: +- 6.0	+ hPa : 1000
Spreed		+ Del. quantity
Tolerance		+ cm3/1000 strokes : 218.0
cm3/1000 strokes	: 6.0	+ Tolerance + cm3/1000 strokes : +- 1.0
Check tolerance cm3/1000s.	: 10.0	+ Check tolerance
CHO/ 10005.	. 10.0	- cm3/1000s. : +- 4.0
		Spreed
(B) SETTING OF IN	JECTION PUMP	Tolerance
WITH GOVERNOR		+ cm3/1000 strokes : 5.0
		+ Check tolerance
OUTSE OF FRIE TOU	451	+ cm3/1000s. : 9.0
GUIDE SLEEVE TRAV	/CL	I
Rated speed rpm	: 1106	
quide sleeve		CONTROL LEVER
guide sleeve travel mm	: 8.02	+
Tolerance mm	: ← 0.15	+ control lever
		position degree : 119.0
Rated speed rpm	: 350	tolerance degree : + 4.0
guide sleeve	. 1 //9	T DATED SPEED
travel mm Tolerance mm	: 1.48 : +- 0.20	+ RATED SPEED + rack travel mm : 13.40
torenative imi	0.20	+ Rated speed rpm : 10.40
Rated speed rpm	: 900	+ Tolerance 1/min : +- 5
quide sleeve		+
travel mm	: 5.69	rack travel mm : 4.00
Tolerance mm	: <b>←</b> 0.25	Rated speed rpm : 1185

Tolerance 1/min rack travel mm Tolerance mm Rated speed rpm	: 0.75 : + 0.75	Pressure hPa rack travel mm Tolerance mm	: 650 : 3.35 : + 0.20
Mateu speed (pm	. 1300	Start interlock Rated speed rpm	
LOW IDLE		- Rated speed rpm - Check	: < 270
		+ speed 1/min	: > 80
control lever position degree tolerance degree		+ Check - speed 1/min	: < 290
Setting point w/o	ut bumper spring	FUEL DELIVERY CHA	RACTERISTICS
Rated speed rpm	: 250	Aneroid pressure	
CRT mm min.	: > 7.90	+ hPa	: 1000
Testing:		Rated speed rpm Del. quantity	: 700
Rated speed rpm	• 350	cm3/1000 strokes Tolerance	: 230.0
rack travel mm Tolerance mm	5.80	+ cm3/1000 strokes	: + 2.0
		Check tolerance cm3/1000s.	: +- 5.0
Rated speed rpm	: 390	+ Spreed + Tolerance	8.0
TORQUE CONTROL		- + cm3/1000 strokes + Check tolerance	: 8.0
Rated speed rpm rack travel mm	: 1050 : 14.40	cm3/1000s.	: 12.0
Tolerance mm	: + 0.05	Į —	
Rated speed rpm rack travel mm	: 700 : 14.80	rack travel mm Tolerance mm	
Tolerance mm		Į ——	
Rated speed rpm	: 970	+ Aneroid pressure + hPa	
rack travel mm	: 14.60	+ Rated speed rpm	500
Tolerance mm	: + 0.05	+ Del. quantity + cm3/1000 strokes	: 135.0
		- + Tolerance	
ANEROID/ALTITUDE COMPENSATOR TEST		cm3/1000 strokes Check tolerance	: ← 1.0
COLUMNIA LEGI		+ cm3/1000s.	: +- 4.0
SETTING		+ Spreed + Tolerance	
	: 500	cm3/1000 strokes Check tolerance	: 8.0
Rated speed rpm Pressure hPa	: -	- cm3/1000s.	: 12.0
MEASUREMENT		REDUCED QUANTITY	
Pressure hPa		+	
rack travel mma Tolerance mma	: 0.75 : +- 0.05	+ Aneroid pressure + hPa	: 1000
・しだらいないと (職)	0.02	Rated speed rpm	

A10

Del. quantity cm3/1000 strokes : 163.0

Tolerance

cm3/1000 strokes : +-2.0

Check tolerance

cm3/1000s. : +-5.0

## STARTING FUEL DELIVERY

100 Rated speed rpm

Del. quantity cm3/1000 strokes : 230.0

Tolerance

cm3/1000 strokes : + 15.0

Check tolerance

cm3/1000S.: **←** 19.0

## LOW IDLE

Rated speed rpm : 350

5.80 Rack travel in mm : Tolerance mm : **←** 0.10

Del. quantity

cm3/1000 strokes : 19.0

Tolerance

cm3/1000 strokes : +-3.0

Check tolerance

cm3/1000s. 6.0 : +-

Spreed

Tolerance

cm3/1000 strokes : 6.0

Check tolerance

10.0 cm3/1000S.

# Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 10.11.97 Test oil : ISO 4113

Combination No. : 0 402 646 785

Injection pump

Pump designation : PE6P120A320LS7869 EP type number : 0 412 626 887

Governor

Governer design. : RQV300...1050PA1078K

Governer no. : 0 421 815 359

Cust. part No. : 9275445

Customer—spec. information Customer : LIEBHERR Motor : D 9406 TI Power KW : 300.0

#### TEST BENCH REQUIREMENTS

Inlet line : 3.1

Test oil inlet

temp. °C : 40
Tolerance °C : +- 2.0

Overflow valve : 1 417 413 047

Inlet press. bar : 2.0 Tolerance bar : + 0.1

Overflow quantity

min. l/h : 165 Tolerance l/h : + 20.0

Test nozzle holde

assembly : 1 688 901 105

Opening pressure

bar : 208.5 Tolerance bar : + 1.5 Test lines : 1 680 750 075

Outside diameter : 8.0

x inside diameter: 3.0 x length mm : 1000

REMARKS

(A) INJECTION PUMP SETTING VALUES

Set equal delivery quant.

per values \_\_\_\_\_

BEGINNING OF DELIVERY

Test pressure bar : 26.0 Tolerance bar : + 1.0

Prestroke mm : 3.65
Tolerance mm : + 0.05

Check

tolerance mm : +- 0.10

Rack travel in mm : 10.50 Tolerance mm : + 1.50

Firing order : 1-6-3-5-2-

: 4

Phasing : 0-60-120-180-240

: -300

Tolerance :  $\leftarrow$  0.50

Check

tolerance \*NW : + 0.75

BASIC SETTING

Rated speed rpm : 1050

\_\_\_\_\_

Rack travel in mm : 12.30 Tolerance mm : + 0.05

Del. quantity

cm3/1000 strokes : 290.0

Tolerance

cm3/1000 strokes : + 1.0

Check tolerance		+
cm3/1000s.	: + 4.0	+ Rated speed rpm : 450
		guide sleeve
Spreed		+ travel mm : 3.66
•		+ Tolerance mm : + 0.25
Tolerance		
cm3/1000 strokes	. 50	Rated speed rpm : 1320
tas/ (000 St) Okes	. 5.0	guide sleeve
Check tolerance		travel mm : 13.50
cm3/1000s.	: 9.0	
CMS/ (DUOS.	: 9.0	+ Tolerance mm : + 0.50
		<b>†</b>
		CUTA DE COMO DOCTORA
	700	+ GUIDE SLEEVE POSITION
Rated speed rpm	: 300	†
		†
Rack travel in m		+ control lever
Tolerance mm	: <b>←</b> 0.10	+ position degree : -1
Del. quantity		+ Rated speed rpm : 1185
cm3/1000 strokes	: 25.0	+
Tolerance		+ Rack travel in mm : 10.80
cm3/1000 strokes	: <del>←</del> 3.0	+ Tolerance mm : + 1.30
Check tolerance		1
cm3/1000s.	: +- 6.0	
Spreed	•	FULL LOAD DELIVERY AT FULL LOAD STOP
Tolerance		TOCK EVAN MELITERY AT TOCK EVAN STOP
cm3/1000 strokes	: 6.0	Rated speed rpm : 1050
Check tolerance		+ Aneroid pressure
cm3/1000s.	: 10.0	141 -
		+ Del. quantity
45		+ cm3/1000 strckes : 290.0
(B) SETTING OF I	NUECTION PUMP	+ Tolerance
WITH GOVERNOR		+ cm3/1000 strokes : + 1.0
		+ Check tolerance
		+ cm3/1000s. : +- 4.0
GUIDE SLEEVE TRA	VEL	+ Spreed
		+ Tolerance
Rated speed rpm	: 1117	+ cm3/1000 strokes : 5.0
guide sleeve		+ Check tolerance
travel mm	: 10.38	+ cm3/1000s. : 9.0
Tolerance mm	: + 0.25	+
		<del> </del>
Rated speed rpm	: 300	
guide sleeve		CONTROL LEVER
travel mm	: 1.69	ANIALITAE PEACIT
Tolerance mm	: + 0.25	T control lever
I U LET CE ILE IME	. · U. <i></i>	+ position degree : 121.0
Dotad assed	: 746	+ tolerance degree : + 4.0
Rated speed rpm	: 746	T coterance degree : T 4.0
guide sleeve		T DATED COPES
travel mm	: 6.20	+ RATED SPEED
Tolerance mm	: + 0.25	+ rack travel mm : 11.30
	73,000	+ Rated speed rpm : 1110
Rated speed rpm	: 353	+ Tolerance 1/min : + 5
guide sleeve		†
travel mm	: 2.45	+ rack travel mm : 4.00
Tolerance mm	: <b>+</b> 0.25	+ Rated speed rpm : 1200
		+ Tolerance 1/min : + 15
Rated speed rpm	: 403	+
guide sleeve	: <del></del>	rack travel mm : 0.50
travel mm	: 3.18	+ Tolerance mm : + 0.50
וטנכומווע וחח	. · 0. <i>L3</i>	I vared speed (bill 1 1000
Tolerance mm	: + 0.25	+ Rated speed rpm : 1300

Tolerance 1/min	: ← 15	+ Rated speed rpm	: 1050
		Pressure hPa rack travel mm Tolerance mm	: -
		+ rack travel mm	: 9.10
		† Tolerance mm	: <b>←</b> 0.20
LOW IDLE		MEASUMEMENT	
		Rated speed rpm	: 1050
control lever		+	
position degree	: 70.0	+ Pressure hPa	: 670
tolerance degree	: <b>←</b> 4.0	+ rack travel mm	: 11.00
_		Pressure hPa rack travel mm Tolerance mm	: + 0.05
Setting point w/o	ut bumper spring	Panasina boa	. (00
Dated annual annual	. 200	+ Pressure hPa	10.50
Rated speed rpm	: 200	rack travel mm Tolerance mm	: 10.30
CRT mm min.	: > 6.50	+ Toterance inn	: + (1.20
Testing:		Start interlock	
Rated speed rpm	: 300	Rated speed rom	: > 100
rack travel mm	5 00	+ Rated speed rpm + Rated speed rpm	< 240
Tolerance mm	: + 0.10	Traced speed (pill	. ` £40
IOCCIONICE INV	0.10	T Check	
Rated speed rpm	. 350	+ speed 1/min	• > &0
varen sheen this	. 250	+ Check	. / 00
		+ check + speed 1/min	• / 250
TORQUE CONTROL		I speed it mill	. \ 630
Rated speed rpm	• 1050	I	
nack thavel min	. 12 70	I FUEL DELIVERY CHA	PACTEDICTICS
rack travel mm Tolerance mm	: + 0.05	T FORE DELIVERY CHA	MACIEKTO (TO)
I O CEI GITTE (BIT	0.07		
Rated speed rpm	: 500	+ Aneroid pressure	
rack travel mm	: 10.10	+ hPa	: 1550
Tolerance mm	: + 0.10	+ Rated speed rpm	: 500
	<del>+ - · -</del>	+ Del. quantity	
Rated speed rpm	: 800	+ cm3/1000 strokes	: 288.0
rack travel mm	: 11.65	Tolerance	
Tolerance mm	: + 0.10	+ cm3/1000 strokes	: + 3.0
TO COLOR TO COM		Check tolerance	J . J . U
Rated speed rpm	: 950	- cm3/1000s.	: +- 6.0
rack travel mm		1	
Tolerance mm		I	
IOTEI OFFICE (BIR	. / - 0.10	Aneroid pressure	
Rated speed rpm	: 600	+ hPa	: 1 <i>5</i> 50
nack though thin		Rated speed rpm	
rack travel mm Tolerance sm	: 10.20 : ← 0.10	rack travel mm	: 11.65
IOTERATE SM	0.10	Tolerance mm	: + 0.10
			0.10
ANEDOTO /AL TITLINE		bel. quantity	• 300 U
ANEROID/ALTITUDE		+ cm3/1000 strokes	: 302.0
COMPENSATOR TEST		+ Tolerance	70
		+ cm3/1000 strokes	: +- 5.0
		+ Check tolerance	
SETTING		± cm3/1000s.	: + 6.0
	: 1050	Į	····
Rated speed rom		Anomaid pagetine	
Rated speed rpm Pressure hPa		* MARCOTO DESSURE	
Pressure hPa	: 1550	+ Aneroid pressure	: -
Rated speed rpm Pressure hPa rack travel mm Tolerance mm		+ hPa + Rated speed rpm	: - : 550

Del. quantity
cm3/1000 strokes : 245.0
Tolerance
cm3/1000 strokes : +- 1.0
Check tolerance
cm3/1000s. : +- 4.0
Spreed
Tolerance
cm3/1000 strokes : 8.0
Check tolerance

cm3/1000s. : 12.0

# STARTING FUEL DELIVERY

Set starting CRT at K-cam.

Rated speed rpm : 100
rack travel mm : 10.00
Tolerance mm : + 0.30
Del. quantity
cm3/1000 strokes : 200.0
Tolerance
cm3/1000 strokes : + 15.0
Check tolerance
cm3/1000s. : + 20.0

## LOW IDLE

Rated speed rpm : 300

Rack travel in mm: 5.00
Tolerance mm: + 0.10
Del. quantity
cm3/1000 strokes: 25.0
Tolerance
cm3/1000 strokes: + 3.0
Check tolerance
cm3/1000s. : + 6.0
Spreed

Tolerance cm3/1000 strokes :

Check tolerance cm3/1000s. : 10.0

6.0

#### Note remarks

Refer to Service Info for test and adjustment instructions. See microcard(s) W400/...

: 10.11.97 Edition Test oil : ISO 4113

Combination No. : 0 402 646 785A

Injection pump

Pump designation : PE6P120A320LS7869 EP type number : 0 412 626 887

Governor

Governer design. : RQV300...1050PA1078K

Governer no. : 0 421 815 359

Cust. part No. : 9275445

Customer-spec. information Customer : LIEBHERR : D 9406 TI Motor : 300.0 Power KW

## TEST BENCH REQUIREMENTS

Inlet line : 3.1

Test oil inlet

temp. °C 40 : + 2.0 Tolerance °C

Overflow valve : 1 417 413 047

Inlet press. bar : 2.0 Tolerance bar : + 0.1

Overflow quantity

min. L/h : 165 Tolerance L/h : + 20.0

Test nozzle holde

: 1 688 901 105 assembly

Opening pressure

208.5 bar Tolerance bar : + 1.5 Test lines : 1 680 750 075

Outside diameter: 8.0

x inside diameter: 3.0

x Length man : 1000

## REMARKS

(A) INJECTION PUMP SETTING VALUES

Set equal delivery quant.

per values \_\_\_\_

# BEGINNING OF DELIVERY

Test pressure bar : 26.0 Tolerance bar : +- 1.0

Prestroke mm 3.65 : +- 0.05 Tolerance mm

Check

tolerance am : + 0.10

Rack travel in mm: 10.50 Tolerance ma: + 1.50

Firing order : 1-6-3-5-2-

Phasing : 0-60-120-180-240

: -300

: + 0.50Tolerance

Check

: **←** 0.75 tolerance \*NW

#### BASIC SETTING

Rated speed rpm : 1050

Rack travel in mm: 12.30 Tolerance mm :  $\leftarrow$  0.05

Del. quantity

cm3/1000 strokes : 290.0

Tolerance cm3/1000 strokes :  $\leftarrow$  1.0

Check tolerance cm3/1000s.	: <b>←</b> 4.0	Rated speed rpm : 450 guide sleeve
Spreed		travel mm : 3.66 Tolerance mm : + 0.25
Tolerance cm3/1000 strokes	: 5.0	Rated speed rpm : 1320 guide sleeve
Check tolerance cm3/1000s.	: 9.0	travel mm : 13.50 Tolerance mm : + 0.50
		GUIDE SLEEVE POSITION
Rated speed rpm	: 300	‡
Rack travel in ma	a: 5. <b>0</b> 0	+ control lever
Tolerance mm	: <b>←</b> 0.10	position degree : - 1
Del. quantity		Rated speed rpm : 1185
cm3/1000 strokes	: 25.0	+
Toterance		Rack travel in man: 11.00
cm3/1000 strokes	: <del>+-</del> 3.0	+ Tolerance mm : + 1.30
Check tolerance	- · <del>-</del>	+
cm3/1000s.	: +- 6.0	
Spreed	<del>-</del>	FULL LOAD DELIVERY AT FULL LOAD STOP
Tolerance		+
cm3/1000 strokes	: 6.0	Rated speed rpm : 1050
Check tolerance		+ Aneroid pressure
cm3/1000s.	: 10.0	+ hPa : 1550
		+ Del. quantity
		+ cm3/1000 strokes : 290.0
(B) SETTING OF IN	NJECTION PUMP	+ Tolerance
WITH GOVERNOR		+ cm3/1000 strokes : + 1.0
		+ Check tolerance
<del></del>		- + cm3/1000s. : +- 4.0
GUIDE SLEEVE TRAY	VEL .	+ Spreed
		+ Tolerance
Rated speed rpm	: 1117	+ cm3/1000 strokes : 5.0
guide sleeve		+ Check tolerance
travel mm	: 10.38	+ cm3/1000s. : 9.0
Tolerance mm	: ← 0.25	+
Data al ancidence	. 700	†
Rated speed rpm	: 300	CONTROL LEVED
guide sleeve	. 4.60	+ CONTROL LEVER
travel mm	: 1.69	I control loven
Tolerance mm	: ← 0.25	+ control lever
Dated opend non	. 7/4	<pre>position degree : 121.0 tolerance degree : +- 4.0</pre>
Rated speed rpm	: 746	T toterance degree . *** 4.0
guide sleeve travel mm	: 6.20	T RATED SPEED
Tolerance mm	: + 0.25	+ rack travel mm : 11.00
さいしていないして 1個月		+ Rated speed rpm : 1105
Rated speed rpm	: 353	Tolerance 1/min : + 5
guide sleeve	. 333	10cci di loc i/milit
travel mm	: 2.45	rack travel mm : 4.00
Tolerance mm	: + 0.25	Rated speed rpm : 1200
IOCE GIVE MIN		Tolerance 1/min : + 15
Rated speed rpm	: 403	Total alice 1/11/11 . The 15
guide sleeve	. 400	Track travel mm : 0.50
travel mm	: 3.18	+ Tolerance mm : + 0.50
Tolerance mm	: + 0.25	Rated speed rpm : 1300
こうしてい 口 にせ 「原味		1. Udica sheed this . (200

Tolerance 1/min : +-	15 1	Rated speed rpm	• 550
TOLE MILE TANKIT	$\mathbf{I}$	Pressure hPa	• -
	1	Pressure hPa rack travel am Tolerance mm	9.10
	1	Tolerance ma	: + 0.20
		7000, 0,700	
LOW IDLE	1	MEASUREMENT	
	1		
	1	Rated speed rpm	: 1050
control lever	1		
position degree :	70.0	Pressure hPa	: 670
tolerance degree : +	4.0	rack travel mm Tolerance mm	: 11.00
•	+	Tolerance mm	: <b>←</b> 0.05
Setting point w/out bumpe	er spring 🗼		
	+	Pressure hPa	: 600
Rated speed rpm : 20	<b>)</b> 00 +	rack travel mm Tolerance mm	: 10.50
	. +	Tolerance mm	: +- 0.20
CRT mm min. :> 0	6.50		
	+		
Testing:	+	Start interlock	
	+		
Rated speed rpm : 30	90+	Rated speed rpm Rated speed rpm	: > 100
rack travel mm :		Rated speed rpm	: < 240
Tolerance mm : +- (	7.10	~! !	
		Check	
Rated speed rpm : 3	50 †	speed 1/min	: > 80
	†	Check	
ZODALIZ GOLIZIAL		speed 1/min	: < 250
TORQUE CONTROL	†		
Rated speed rpm : 10		FUEL NELTWERY AND	DAGTEDTOTTOG
rack travel mm : 1		FUEL DELIVERY CHA	RACIERISILUS
Tolerance am : + (	7.05		
Poted aroad nom . 50	$\mathbf{r}$	Aneroid pressure	
Rated speed rpm : 50 rack travel mm : 10	I	PDs	: 1550
Tolerance mm : +- (	I I	hPa Rated speed rpm	. 1550
TOTE CARLE IN THE	J. 10	Del. quantity	. 500
Rated speed ros	$\mathbf{m}$	cm3/1000 strokes	: 288.n
Rated speed rpm : 80 rack travel mm : 1	$\widetilde{1.65}$	Tolerance	
Tolerance mm : + (	n in I	cm3/1000 strokes	: <b>←</b> 3.0
	I	Check tolerance	
Rated speed rpm : 9	50	cm3/1000s.	: +- 6.0
rack travel mm : 1		Survey i was water to	- <b>-</b>
Tolerance mm : +		-	
	1	Aneroid pressure	
Rated speed rpm : 60	00 1	hPa	: 1550
		Rated speed rpm	: 800
rack travel mm : 10 Tolerance mm : + 0		rack travel mm	: 11.65
	1	Tolerance mm	: <b>←</b> 0.10
	+	Del. quantity	
ANEROID/ALTITUDE	+	cm3/1000 strokes	: 302.0
COMPENSATOR TEST	+	Toterance	
	+	cm3/1000 strokes	: <del>←</del> 3.0
	+	Check tolerance	
SETTING	+	cm3/1000s.	: + 6.0
	+ 1		
Rated speed rpm : 10!		***************************************	
Pressure hPa : 15!		Aneroid pressure	
rack travel mm : 1		hPa	-
Tolerance mm : + (	D.05 <del>↓</del>	Rated speed rpm	: 550

Del. quantity cm3/1000 strokes Tolerance	: 245.0
cm3/1000 strokes Check tolerance	: <b>←</b> 1.0
cm3/1000s.	: + 4.0
Spreed Tolerance	0.0
cm3/1000 strokes Check tolerance	
cm3/1000s.	: 12.0
STARTING FUEL DEL	IVERY
Set starting CRT	at K-cam.
Rated speed rpm	: 100
rack travel mm	: 10.00
Tolerance mm Del. quantity	: ← 0.20
cm3/1000 strokes	: 200.0
Tolerance cm3/1000 strokes	: +- 15.0
Check tolerance	
cm3/1 <b>000</b> s.	: <del>+</del> 20.0
LOW IDLE	
Rated speed rpm	: 300
Rack travel in mm	: 5.00
Tolerance mm Del. quantity	: <b>←</b> 0.10
cm3/1000 strokes	: 25.0
Tolerance ca3/1000 strokes	: ← 3.0
Check tolerance	
cm3/1000S. Spreed	: + 6.0
Tolerance	
cm3/1000 strokes Check tolerance	: 6.0
cm3/1000s.	: 10.0

#### Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 17.11.97 Test oil : ISO 4113

Combination No. : 0 402 648 702

Injection pump

Pump designation : PE8P12OA32OLS7915 EP type number : 0 412 628 929

Governor

6overner design. : RQV250...1150PA1346 6overner no. : 0 421 814 193

Cust. part No. :

Customer—spec. information Customer : DHI Motor : DV15T Power KW : 272.0

# TEST BENCH REQUIREMENTS

Inlet line : 3.2

Test oil inlet

temp. \*C : 40
Tolerance \*C : + 2.0

Overflow valve : 1 417 413 047

Inlet press. bar : 1.5 Tolerance bar : + 0.1

Overflow quantity

min. L/h : 125 Tolerance L/h : +- 20.0

Test nozzle holde

assembly : 1 688 901 105

Opening pressure

bar : 208.5 Tolerance bar : + 1.5 Test Lines : 1 680 750 089

Outside diameter : 8.0

x inside diameter: 3.0 x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES

Set equal delivery quant.

per values \_\_\_\_

#### BEGINNING OF DELIVERY

Test pressure bar : 26.0 Tolerance bar : + 1.0

Prestroke mm : 5.20
Tolerance mm : + 0.05

Check

tolerance mm : + 0.10

Rack travel in mm : 16.00 Tolerance mm : + 1.50

Firing order : 8-7-2-6-3

: - 5- 4- 1

Phasing : 0-45-90-135-180 : -225-270-315

Tolerance :  $\leftarrow 0.50$ 

Check

tolerance \*NW : + 0.75

Start of delivery mark

Tolerance :  $\leftarrow$  0.50

Check

tolerance \*NW : + 0.75

Barrel no. : 8

BASIC SETTING

Rated speed rpm : 1150

Rack travel in mm : 13.80
Tolerance mm : +- 0.05

		+ guide sleeve
Del. quantity		travel mm : 4.65
cm3/1000 strokes	: 222.0	Tolerance mas : + 0.25
		,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,
Tolerance		Rated speed rpm : 1390
cm3/1000 strokes	: + 1.0	guide sleeve
		travel mm : 11.50
Check tolerance		Tolerance mm : + 0.50
cm3/1000s.	: <del></del>	1
	· · · · · · · · · · · · · · · · · · ·	
Spreed		GUIDE SLEEVE POSITION
		+
Tolerance		+
cm3/1000 strokes	: 7.0	+ control lever
		→ position degree : - 1
Check tolerance		+ Rated speed rpm : 1227
cm3/1000s.	: 10.0	†
		Rack travel in mm: 12.80
		+ Tolerance man : ← 1.30
		+
Rated speed rpm	: 250	
	5.40	FULL LOAD DELIVERY AT FULL LOAD STOP
Rack travel in man		†
Tolerance mm	: <b>←</b> 0.10	Rated speed rpm : 1150
Del. quantity	. 20 0	Aneroid pressure
cm3/1000 strokes	: 20.0	+ hPa : -
Tolerance	7.0	Del. quantity
cm3/1000 strokes	: +- 3.0	cm3/1000 strokes : 222.0
Check tolerance	: <b>←</b> 6.0	+ Tolerance + cm3/1000 strokes : ← 1.0
cm3/1000s.	: <del>-</del> 6.0	
Spreed		+ Check tolerance + cm3/1000s. : +- 4.0
Tolerance cm3/1000 strokes	: 5.0	+ Spreed
Check tolerance	. 5.0	+ Tolerance
cm3/1000s.	: 8.0	+ cm3/1000 strokes : 7.0
CHO/ 10003.	. 0.0	+ Check tolerance
		+ cm3/1000s. : 10.0
(B) SETTING OF IN	LIECTION PLIMP	I (115) 13003.
WITH GOVERNOR	10 CC   2014   OF	I
MIIII GOACINION		
		CONTROL LEVER
GUIDE SLEEVE TRAV	/EL	יייי איייי אייי איי אייי אייי איי אייי אייי אייי אייי אייי אייי אייי אייי איי אייי איי אייי איי איי אייי איי אי
		control lever
Rated speed rpm	: 1207	position degree : 58.0
guide sleeve		tolerance degree : + 4.0
travel mm	: 8.92	1
Tolerance ma	: +- 0.15	control lever
		position degree : 122.0
Rated speed rpm	: 250	+ tolerance degree : +- 4.0
guide sleeve		+
travel mm	: 1.31	+ RATED SPEED
Tolerance mm	: ← 0.20	+ rack travel mm : 12.80
		+ Rated speed rpm : 1195
Rated speed rpm	: 1185	Tolerance 1/min : + 5
guide sleeve	-	+
travel mm	: 8.60	+ rack travel mm : 4.00
Tolerance ma	: <b>←</b> 0.25	+ Rated speed rpm : 1295
		+ Tolerance 1/min : ← 15
Rated speed rpm	: 640	†
		+ rack travel mm : 0.50

Tolerance ann Rated speed rpm	: + 0.50 : 1400
LOW IDLE	
control lever position degree tolerance degree	: 85.0 : + 4.0
control lever position degree tolerance degree	: 21.0 : + 4.0
Setting point w/o	out bumper spring
Rated speed rpm	: 150
CRT mm min.	: > 7.30
Testing:	
Rated speed rpm rack travel mm Tolerance mm	: 250 : 5.60 : + 0.10
Rated speed rpm	: 300
TORQUE CONTROL Rated speed rpm rack travel mm Tolerance mm	: 1150 : 13.80 : + 0.05
Rated speed rpm rack travel mm Tolerance mm	
ANEROID/ALTITUDE COMPENSATOR TEST	
SETTING	
Rated speed rpm Pressure hPa rack travel mm Tolerance mm	: 500 : 1500 : 13.80 : +- 0.05
Rated speed rpm Pressure hPa rack travel mm Tolerance mm	: 500 : - : 8.10 : +- 0.20
MEASUREMENT	

Rated speed rpm	: 500		
Pressure hPa rack travel mm Tolerance mm	: 350 : 10.00 : + 0.20		
Pressure hPa rack travel mm Tolerance mm	: 735 : 12.10 : + 0.05		
Start interlock			
Rated speed rpm Rated speed rpm	: > 165 : < 190		
Check speed 1/min Check	: > 155		
speed 1/min	: < 210		
FUEL DELIVERY CHA	RACTERISTICS		
Aneroid pressure	• _		
Rated speed rpm Del. quantity	: 650		
cm3/1000 strokes Tolerance	: 241.0		
cm3/1000 strokes Check tolerance	: + 3.0		
cm3/1000s.	: ← 6.0		
Aneroid pressure	•		
Rated speed rpm Del. quantity	: 500		
cm3/1000 strokes Tolerance	: 123.0		
cm3/1000 strokes Check tolerance	: <b>←</b> 1.0		
cm3/1000s.	: +- 4.0		
STARTING FUEL DELIVERY			
Rated speed rpm	: 100		
Del. quantity cm3/1000 strokes	: 193.0		
Tolerance cm3/1000 strokes	: <del>+</del> 20.0		
Check tolerance cm3/1000s.	: + 24.0		

# LOW IDLE

Rated speed rpm	:		250
Rack travel in man Tolerance man Del. quantity		+	5.60 0.10
cm3/1900 strokes	:		20.0
cm3/1000 strokes	:	+-	3.0
Check tolerance cm3/1000s. Spreed	:	+	6.0
Tolerance cm3/1000 strokes Check tolerance	:		5.0
cm3/1000s.	:		8.0

#### Note remarks

Refer to Service Info for test and adjustment instructions. See microcard(s) W400/...

: 13.10.97 Edition : ISO 4113 Test oil

Combination No. : 0 402 6/8 919

Injection pump

Pump designation : PEOF120A320LS7843 EP type number : 0 412 628 859

Governor

Governer design. : RQV350...1050PA842

: -8

: 0 421 813 952 Governer no.

Cust. part No. : 022 074 0102

Customer-spec. information Customer : MB-NFZ : 0M442 LA Motor Power KW : 320.0

## TEST BENCH REQUIREMENTS

Inlet line : 3.1

Test oil inlet

temp. °C 40 Tolerance \*C

Overflow valve : 1 417 413 047

Inlet press. bar : 2.0

Overflow quantity

min. l/h : 110 Tolerance l/h : +- 10.0

Test nozzle holde

: 1 688 901 019 assembly

Opening pressure

: 208.5 bar Tolerance bar : - 1.5 Test lines : 1 680 750 067

Outside diameter : 6.0

x inside diameter: 3.0 x Length mm : 1000

REMARKS

(A) INJECTION PUMP SETTING VALUES

Set equal delivery quant.

per values \_\_\_\_\_

# BEGINNING OF DELIVERY

Test pressure bar : 26.0 Tolerance bar : + 1.0

Prestroke mm : 5.25
Tolerance mm : + 0.05 Check

tolerance mm

Rack travel in mm: 20.50

: **←** 0.50 Tolerance mm

Firing order : 8-7-2-6-3 : - 5- 4- 1

: +- 0.10

: 0-45-90-135-180 Phasing

: -225-270-315

Tolerance : +- 0.50

Check

tolerance \*NW : +- 0.75

Start of delivery mark

Tolerance : **←** 0.10

Check

tolerance "NW : **←** 0.75

Barrel no. : 8

BASIC SETTING

Rated speed rpm : 600

Rack travel in mm: 14.60 Tolerance mm: : +- 0.10	Rated speed rpm : 1100 guide sleeve
	travel mm : 8.10
Del. quantity cal3/1000 strokes : 230.0	Tolerance mm : + 0.3
Tolerance cm3/1000 strokes : + 1.0	GUIDE SLEEVE POSITION
Check tolerance cm3/1000s. : + 4.0	control lever position degree : - 1 Rated speed rpm : 1125
Spreed	The control of the co
Tolerance cm3/1000 strokes : 5.0	Rack travel in mm : 17.2 Tolerance mm : + 0.7
Check tolerance cm3/1000s. : 9.0	FULL LOAD DELIVERY AT FULL
	Rated speed rpm : 600 Aneroid pressure hPa : 1000
Rated speed rpm : 350	Del. quantity + cm3/1000 strokes : 230.
Rack travel in mm: 5.80 Tolerance mm: + 0.30 Del. quantity	Tolerance cm3/1000 strokes : +- 1.
cm3/1000 strokes : 19.0 Tolerance	cm3/1000s. : +- 4.
cm3/1000 strokes : + 3.0 Check tolerance	+ Tolerance + cm3/1000 strokes : 5.
cm3/1000s. : +- 6.0 Spreed	Check tolerance cm3/1000s. : 9.
Tolerance cm3/1000 strokes : 6.0 Check tolerance	<u> </u>
cm3/1000s. : 10.0	CONTROL LEVER
(B) SETTING OF INJECTION PUMP WITH GOVERNOR	control lever position degree : 117. tolerance degree : + 4.
GUIDE SLEEVE TRAVEL	RATED SPEED rack travel ram : 13.5
Rated speed rpm : 1270 guide sleeve	+ Rated speed rpm : 1095 + Tolerance 1/min : +-
travel mm : 11.50 Tolerance mm : + 0.50	rack travel mm : 4.0 Rated speed rpm : 1175 Tolerance 1/min : + 1
Rated speed rpm : 350 guide sleeve	rack travel mm : 0.5
travel mm : 1.00 Tolerance mm : + 0.20	Tolerance mm : + 0.5 Rated speed rpm : 1300
Rated speed rpm : 510 guide sleeve	‡
travel mm : 3.85 Tolerance mm : + 0.25	LOW IDLE

guide sleeve travel mm Tolerance mm	: 8.10 : ← 0.30
Tolerance mm	; <del>***</del> U.3U
GUIDE SLEEVE POSIT	TION
control lever	•
position degree Rated speed rpm	1125
Rack travel in mm Tolerance mm	: 17.25 : + 0.75
FULL LOAD DELIVER	AT FULL LOAD STOP
Rated speed rpm Aneroid pressure	: 600
hPa Del. quantity	: 1000
cm3/1000 strokes	: 230.0
Tolerance cm3/1000 strokes	: + 1.0
Check tolerance cm3/1000s.	: +- 4.0
Spreed Tolerance	
cm3/1000 strokes Check tolerance	: 5.0
cm3/1000s.	: 9.0
CONTROL LEVER	
control lever position degree	: 117.0
tolerance degree	: + 4.0
RATED SPEED rack travel am	: 13.50
Rated speed rpm Tolerance 1/min	: 1095
rack travel mm	: 4.00
Rated speed rpm	: 1175
Tolerance 1/min	: + 15
rack travel mm Tolerance mm	: 0.50 : + 0.50
Rated speed rpm	: 1300
LOW IDLE	

control lever position degree tolerance degree	: 65.0 : + 4.0
Setting point w/o	ut bumper spring
Rated speed rpm	: 100
CRT mm min.	: > 7.40
Testing:	
Rated speed rpm rack travel mm Tolerance mm	: 350 : 5.80 : + 0.30
Rated speed rpm	: 450
TORQUE CONTROL Rated speed rpm rack travel mm Tolerance mm	: 600 : 14.60 : + 0.10
Rated speed rpm rack travel mm Tolerance mm	: 1050 : 14.60 : + 0.10
Rated speed rpm rack travel mma Tolerance mm	
ANEROID/ALTITUDE COMPENSATOR TEST	
SETTING	
Rated speed rpm Pressure hPa rack travel mm Tolerance mm	: 600 : 1250 : 0.20 : + 0.10
2-stage LDA setti	ng
Rated speed rpm Pressure hPa	: 600 : 1000
MEASUREMENT	
Rated speed rpm	: 600
Pressure hPa rack travel mm Tolerance mm	: 400 : −3.50 : ← 0.10
Pressure hPa	: 550

rack travel mm Tolgrance mm	: -2.20 : +- 0.10
Start interlock	
Rated speed rpm Rated speed rpm	: > 100 : < 270
	; > 80
Check speed 1/min	: < 290
FUEL DELIVERY CHA	RACTERISTICS
Aneroid pressure hPa Rated speed rpm	: 1500 : 1050
Del. quantity cm3/1000 strokes Tolerance	: 230.5
cm3/1000 strokes Check tolerance	: <b>←</b> 1.5
cm3/1000s. Spreed	: + 4.5
Tolerance cm3/1000 strokes	: 8.0
Check tolerance cm3/1000S.	: 12.0
Aneroid pressure	: 1500
Rated speed rpm	: 1500 : 300
rack travel mm	: 14.90
Tolerance mm Del. quantity	: + 0.10
cm3/1000 strokes Tolerance	: 238.0
cm3/1000 strokes Check tolerance	: +- 2.0
cm3/1000s. Spreed	: +- 5.0
Tolerance cm3/1000 strokes	: 8.0
Check tolerance cm3/1000s.	: 12.0
Aneroid pressure	
hPa Rated speed rpm	500
Del. quantity cm3/1000 strokes	: 137.0
Tolerance cm3/1000 strokes	: + 1.0

Check tolerance
cm3/1000s. : + 4.0
Spreed
Tolerance
cm3/1000 strokes : 8.0
Check tolerance

cm3/1000s. : 12.0

# STARTING FUEL DELIVERY

Rated speed rpm : 100 Del. quantity cm3/1000 strokes : 260.0

Tolerance

cm3/1000 strokes : + 15.0

Check tolerance

Check tolerance cm3/1000s.

cm3/1000s. : + 20.0

## LOW IDLE

Rated speed rpm : 35C Rack travel in mm : 5.80 : **←** 0.30 Tolerance mm Del. quantity cm3/1000 strokes : 19.0 Tolerance cm3/1600 strokes : +-3.0 Check tolerance cm3/1000s. 6.0 Spreed Tolerance cm3/1000 strokes : 6.0

10.0

#### Note remarks

Refer to Service Info for test and adjustment instructions. See microcard(s) W400/...

Edition Test oil : 16.07.97 : ISO 4113

Combination No. : 0 402 648 920

Injection pump

Pump designation : PE8P120A320LS7844 EP type number : 0 412 628 860

Governor

Governer design. : RQV350...1050PA870

: --16

Governer no. : 0 421 813 953

Cust. part No. : 022 074 0202

Customer—spec. information : MB-NFZ Customer

Motor

: 0M442 LA

Power KW

: 370.0

#### TEST BENCH REQUIREMENTS

Inlet line : 3.1

Test oil inlet

temp. °C

40

Tolerance °C

Overflow valve : 1 417 413 025

Inlet press. bar :

1.5

Tolerance bar : + 0.1

Overflow quantity

min. L/h : 110
Tolerance L/h : + 10.0

Test nozzle holde

assembly

: 1 688 901 105

Opening pressure

bar : 208.5 Tolerance bar : + 1.5

**A28** 

Test lines : 1 680 750 075

Outside diameter: 8.0

x inside diameter:

2.5

x Length mm : 1000

#### REMARKS

(A) INJECTION PUMP SETTING VALUES

Set equal delivery quant.

per values \_\_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 26.0 Tolerance bar : + 1.0

Prestroke mm : 5.05 Tolerance mm : + 0.05

Check

: **←** 0.10 tolerance mm

Rack travel in mm: 20.50

Tolerance mm :  $\leftarrow$  0.50

Firing order : 8-7-2-6-3 :-5-4-1

Phasing : 0-45-90-135-180

: -225-270-315

Tolerance : +- 0.50

Check

tolerance \*NW : + 0.75

Start of delivery mark

Barrel no. :

8

# CRT ZERO POSITION

Rack travel in mm: 14.30

Tolerance mm : + 0.10

BASIC SETTING

Rated speed rpm : 600

	+ Tolerance mm : + 0.25
Rack travel in mm : 14.30 Tolerance mm : +- 0.10	Rated speed rpm : 900 guide sleeve
Del. quantity cm3/1000 strokes : 258.0	travel mm : 5.65 Tolerance mm : + 0.25
Tolerance	Rated speed rpm : 1204 guide sleeve
cm3/1000 strokes : + 1.0	travel mm : 10.05 Tolerance mm : + 0.25
Check tolerance cm3/1000s. : +- 4.0	GUIDE SLEEVE POSITION
Spreed	‡
Tolerance cm3/1000 strokes : 5.0	control lever position degree : - 1 Rated speed rpm : 1125
Check tolerance : 9.0	Rack travel in mm: 17.25 Tolerance mm: + 0.75
Rated speed rom : 350	FULL LOAD DELIVERY AT FULL LOAD STOP
Rack travel in mm: 5.00 Tolerance mm: : + 0.10	Rated speed rpm : 600 Aneroid pressure
Del. quantity cm3/1000 strokes : 19.0 Tolerance	hPa : 1100 Del. quantity cm3/1000 strokes : 258.0
cm3/1000 strokes : + 3.0 Check tolerance	+ Tolerance + cm3/1000 strokes : + 1.0
cm3/1000s. : +- 6.0 Spreed	Check tolerance : + 4.0
Tolerance cm3/1000 strokes : 6.0	- Spreed - Tolerance
Check tolerance cm3/1000s. : 10.0	- cm3/1000 strokes : 5.0 - Check tolerance - cm3/1000s. : 9.0
(B) SETTING OF INJECTION PUMP	+
WITH GOVERNOR	CONTROL LEVER
GUIDE SLEEVE TRAVEL	control lever position degree : 119.0
Rated speed rpm : 1108 guide sleeve	tolerance degree : + 4.0
travel mm : 8.05 Tolerance mm : + 0.25	RATED SPEED : 14.30
Rated speed rpm : 350	Rated speed rpm : 1095 Tolerance 1/min : + 5
guide sleeve travel mm : 1.55	rack travel mm : 4.00
Tolerance mm : +- 0.25	rack travel mm : 4.00 Rated speed rpm : 1195 Tolerance 1/min : +- 15
Rated speed rpm : 570 guide sleeve travel mm : 3.55	rack travel mm : 0.50
travet ma : 5.55	† Tolerance mm : + 0.50

Ratted speed rpm : 1300	Pressure hPa : 1300 rack travel mm : 0.45 Tolerance mm : + 0.05
LOW IDLE	Start interlock
control lever position degree : 67.0 tolerance degree : + 4.0	Rated speed rpm : > 100 Rated speed rpm : < 270
Setting point w/out bumper spring	Check speed 1/min : > 80
Rated speed rpm : 250	Check speed 1/min : < 290
CRT mm min. :> 6.60	FUEL DELIVERY CHARACTERISTICS
Testing:	
Rated speed rpm : 350 rack travel mm : 5.00 Tolerance mm : + 0.10	Aneroid pressure hPa : 1800 Rated speed rpm : 1050
Rated speed rpm : 450	Del. quantity cm3/1000 strokes : 272.0 Tolerance cm3/1000 strokes : + 1.5
TORQUE CONTROL Rated speed rpm : 600 rack travel mm : 14.30 Tolerance mm : + 0.10	Check tolerance cm3/1000s. : + 4.5
Rated speed rpm : 1050 rack travel mm : 15.30 Tolerance mm : + 0.10	Aneroid pressure hPa : 1800 Rated speed rpm : 800 rack travel mm : 15.30 Tolerance mm : + 0.10
Rated speed rom : 800 + rack travel mm : 15.30 + Tolerance mm : + 0.10	Del. quantity cm3/1000 strokes : 274.0 Tolerance cm3/1000 strokes : + 2.0 Check tolerance
ANEROID/ALTITUDE COMPENSATOR TEST	cm3/1000s. : +- 5.0
2-stage LDA setting	Aneroid pressure hPa : - Rated speed rpm : 500
Rated speed rpm : 600	Del. quantity cm3/1000 strokes : 140.0
Pressure hPa : 1100	Tolerance cm3/1000 strokes : +- 1.0
MEASUREMENT +	Check tolerance cm3/1000s. : +- 4.0
Pressure hPa : 290 + rack travel mm : -5.50 + Tolerance mm : +- 0.05	REDUCED QUANTITY
Pressure hPa : 780 + rack travel mm : -1.30 + Tolerance mm : + 0.10	Aneroid pressure hPa : 1800 Rated speed rpm : 1050

Del. quantity

cm3/1000 strokes : 206.0

Tolerance

cm3/1000 strokes : +--1.5

Check tolerance

cm3/1000s.4.0

#### STARTING FUEL DELIVERY

Rated speed rpm 100

Del. quantity cm3/1000 strokes : 270.0

Tolerance

cm3/1000 strokes :  $\leftarrow$  10.0

Check tolerance

: + 14.0 cm3/1000s.

## LOW IDLE

350 Rated speed rpm :

Rack travel in mm: 5.00 Tolerance mm : **←** 0.10

Del. quantity

cm3/1000 strokes : 19.0

Tolerance

cm3/1000 strokes : +-3.0

Check tolerance

cm3/1000s.6.0

Spreed

Tolerance

cm3/1000 strokes : 6.0

Check tolerance

cm3/1000S. 10.0

#### Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 17.11.97 Test oil : ISO 4113

Combination No. : 0 402 676 840

Injection pump

Pump designation : PE6P120A320LS7918 EP type number : 0 412 626 971

Governor

Governer design. : RSV550...1050P0A685

Governer no. : 0 421 833 608

Cust. part No. : 0270744202

Customer—spec. information Customer : MB-NFZ Motor : OM 441 LA Power KW : 239.0

# TEST BENCH REQUIREMENTS

Inlet line : 3.1

Test oil inlet

temp. °C : 40
Tolerance °C : + 2.0

Overflow valve : 1 417 413 047

Inlet press. bar : 2.0
Tolerance bar : +- 0.1

Overflow quantity

min. l/h : 150 Tolerance l/h : ← 20.0

Test nozzle holde

assembly : 1 688 901 105

Opening pressure

bar : 208.5 Tolerance bar : + 1.5 Test lines : 1 680 750 075

Outside diameter : 8.0

x inside diameter: 3.0 x length mm : 1000

REMARKS

(A) INJECTION PUMP SETTING VALUES

Set equal delivery quant.

per values \_\_\_\_

BEGINNING OF DELIVERY

Test pressure bar : 26.0 Tolerance bar : + 1.0

Prestroke mm : 5.25 Tolerance mm : +- 0.05

Check

tolerance mm : + 0.10

Rack travel ir: mm : 20.50 Tolerance mm : + 0.50

Firing order : 6-3-5-2-4-

: 1

Phasing : 0-60-120-180-240

: -300

Tolerance :  $\leftarrow$  0.50

Check

tolerance °NW : + 0.75

Start of delivery mark

Tolerance :  $\leftarrow$  0.10

Check

tolerance \*NW : +- 0.75

Barrel no. : 6

.

BASIC SETTING

Rated speed rpm : 1030

Rack travel in mm : 14.50
Tolerance mm : + 0.05

B04

	+ Aneroid pressure
Del. quantity cm3/1000 strokes : 227.0	hPa : -  Del. quantity
	+ cm3/1000 strokes : 227.0
Tolerance cm3/1000 strokes : + 1.0	Tolerance cm3/1000 strokes : +- 1.0 Check tolerance
Check tolerance cm3/1000s. : + 4.0	cm3/1000S. : + 4.0 Spreed Tolerance
Spreed	cm3/1000 strokes : 5.0 Check tolerance
Tolerance cm3/1000 strokes : 5.0	cm3/1000s. : 9.0
Check tolerance cm3/1000s. 9.0	CONTROL LEVER
	control lever
Rated speed rpm : 550	+ position degree : 80.0 + tolerance degree : + 4.0
Rack travel in mm: 4.30 Tolerance mm: + 0.10	ASSEMBLY GOVERNOR SETTING
Del. quantity cm3/1000 strokes : 19.0	Rated speed rpm : 1070
Tolerance cm3/1000 strokes : +- 3.0	rack travel mm : 13.50
Check tolerance cm3/1000s. : +- 6.0	Rated speed rpm : 1122 Tolerance 1/min : +- 4
Spreed	rack travel mm : 4.00
Tolerance cm3/1000 strokes : 6.0	rack travel mm : 0.85
Check tolerance cm3/1000s. : 10.0	Tolerance mm : + 0.55 Rated speed rpm : 1300
(D) OF THE OF THE STANL NUMB	Panel and an and an
(B) SETTING OF INJECTION PUMP WITH GOVERNOR	Rated speed rpm : 1071 rack travel mm : 13.50
	Rated speed rpm : 1123
GUIDE SLEEVE POSITION	Tolerance 1/min : + 4 rack travel mm : 4.00
	rack travel mm : 0.85 Tolerance mm : + 0.55
control lever position degree : - 3 Rated speed rpm : 800	Tolerance mm : + 0.55 Rated speed rpm : 1300
Rack travel in mm : 0.50 Tolerance mm : +- 0.20	Rated speed rpm : 1072 rack travel mm : 13.50
governor spring pre-tension click setting x : 2.00	Rated speed rpm : 1124 Tolerance 1/min : +- 4 rack travel mm : 4.00
FULL LOAD DELIVERY AT FULL LOAD STOP	rack travel mm : 0.85 Tolerance mm : + 0.55
Rated speed rpm : 1030	Rated speed rpm : 1300

B05

Rated speed rpm rack travel mm	: 1073 : 13.50
Rated speed rpm Tolerance 1/min rack travel mm	
rack travel mm Tolerance mm Rated speed rpm	: 0.85 : + 0.55 : 1300
Rated speed rpm rack travel mma	: 1074 : 13.50
Rated speed rpm Tolerance 1/min rack travel mm	
rack travel mma Tolerance mma Rated speed rpma	: 0.85 : + 0.55 : 1300
rack travel mm	: 13.50
rack travel mm	: 4.00
	: 0.85
rack travel mm Tolerance mm	: +- 0.55
	: +- 0.55
Tolerance mm	: +- 0.55 : 70.0
LOW IDLE  control lever position degree	: +- 0.55 : 70.0 : +- 4.0
LOW IDLE  control lever position degree tolerance degree	: +- 0.55 : 70.0 : +- 4.0  out bumper spring
Tolerance mm  LOW IDLE  control lever position degree tolerance degree  Setting point w/c  Rated speed rpm	: +- 0.55 : 70.0 : +- 4.0  out bumper spring
Tolerance mm  LOW IDLE  control lever position degree tolerance degree  Setting point w/c  Rated speed rpm	: +- 0.55  : 70.0 : +- 4.0  out bumper spring : 450
Tolerance mm  LOW IDLE  control lever position degree tolerance degree  Setting point w/c  Rated speed rpm  CRT mm min.	: +- 0.55  : 70.0 : ← 4.0  out bumper spring : 450 : > 8.50 : 550
Tolerance mm  LOW IDLE  control lever position degree tolerance degree  Setting point w/o  Rated speed rpm  CRT mm min.  Testing:  Rated speed rpm  rack travel mm	: +- 0.55  : 70.0 : +- 4.0  out bumper spring : 450 : > 8.50  : 550 : 4.30 : +- 0.10
CRT mm min. Testing: Rated speed rpm rack travel mm Tolerance mm	: +- 0.55  : 70.0 : ← 4.0  out bumper spring : 450 : > 8.50  : 550 : 4.30 : + 0.10 : 2.00 : 565 : + 30

TORQUE CONTROL Rated speed rpm rack travel mm Tolerance mm	: 1030 : 14.50 : + 0.05	
Rated speed rpm rack travel mm Tolerance mm	: 960 : 14.70 : + 0.05	
Rated speed rpm rack travel mm Tolerance mm	: 600 : 15.30 : + 0.10	
ANEROID/ALTITUDE COMPENSATOR TEST		
SETTING		
Rated speed rpm Pressure hPa rack travel mm	: 500 : 1000	
Tolerance mm	: 15.20 : ← 0.10	
Tolerance mm  Rated speed rpm Pressure hPa rack travel mm	: ← 0.10 : 500 : - : 10.95	
Tolerance mm  Rated speed rpm Pressure hPa rack travel mm Tolerance mm	: ← 0.10 : 500 : - : 10.95 : ← 0.20	
Tolerance mm  Rated speed rpm Pressure hPa rack travel mm Tolerance mm  MEASUREMENT	: ← 0.10 : 500 : - : 10.95 : ← 0.20	
Tolerance mm  Rated speed rpm Pressure hPa rack travel mm Tolerance mm  MEASUREMENT  Rated speed rpm  Pressure hPa rack travel mm	: ← 0.10 : 500 : 10.95 : ← 0.20 : 500 : 650 : 13.85	

# FUEL DELIVERY CHARACTERISTICS

Aneroid pressure		
hPa	:	-
Rated speed rpm	:	600
rack travel mm	:	15.30
Tolerance mm	:+	- 0.10
Del. quantity		
cm3/1000 strokes	:	260.0
Tolerance		
cm3/1000 strokes	: +	- 3.0
Check tolerance		
cm3/1000s.	: +	- 6.0

Spreed Tolerance cm3/1000 strokes	: 8.0		
Check tolerance cm3/1000s.	: 12.0		
Aneroid pressure			
Rated speed rpm Del. quantity	: 500		
cm3/1900 strokes Tolerance	: 159.0		
cm3/1000 strokes Check tolerance	: <del>+</del> 1.0		
cm3/1000s. Spreed	: + 4.0		
Tolerance cm3/1000 strokes	: 5.0		
Check tolerance cm3/1000s.	: 9.0		
	•		
STARTING FUEL DELIVERY			
Rated speed rpm	: 100		
Del. quantity cm3/1000 strokes	: 250.0		
Tolerance cm3/1000 strokes Check tolerance	: + 15.0		
cm3/1000s.	: + 19.0		
LOW IDLE			
Rated speed rpm	: 550		
Rack travel in mon Tolerance mon	: 4.30 : + 0.10		
Del. quantity cm3/1000 strokes	: 19.0		
Tolerance cm3/1000 strokes	: + 3.0		
Check tolerance	: + 6.0		
cm3/1000s. Spreed	. +- 0.0		
Tolerance cm3/1000 strokes	: 6.0		
Check tolerance			

#### Note remarks

Refer to Service Info for test and adjustment instructions. See microcard(s) W400/...

: 03.11.97 Edition : ISO 4113 Test oil

Combination No. : 0 402 738 800

Injection pump

Pump designation: PE8P130A720/3LS7443 EP type number : 0 412 738 801

Governor

Governer design. : RQV350...900PA1359

Governer no. : 0 421 814 202

Cust. part No. :

Customer-spec. information

: FINCANTIERI Customer : V1708T2-SPE Motor

Power KW : 815.0

#### TEST BENCH REQUIREMENTS

Inlet line : 3.1

Test oil inlet

temp. °C Tolerance °C

Overflow valve : 1 417 413 047

Inlet press. bar : 2.0

Overflow quantity

: 160 min. L/h Tolerance l/h: +- 20.0

Test nozzle holde

: 1 688 901 105 assembly

Opening pressure

bar : 208.5 Tolerance bar : + 1.5 Test Lines : 1 680 750 075

Outside diameter: 8.0

x inside diameter: 3.0 x Length mm : 1000

## REMARKS

(A) INJECTION PUMP SETTING VALUES

Set equal delivery quant.

per values \_\_\_\_\_

# BEGINNING OF DELIVERY

Test pressure bar : Tolerance bar :  $\leftarrow$  1.0

3.55 Prestroke mm : +- 0.05 Tolerance mm

Check

: + 0.10 tolerance mm

Rack travel in mm: 10.50 : + 1.50 Tolerance mm

Firing order : 1-2-6-3-4-5-7-8

: 0-45-90-135-180-225 Phasing

: -270-315 Tolerance : **←** 0.50

Check

tolerance \*NW : + 0.75

## BASIC SETTING

Rated speed rpm : 900

Rack travel in mm: 14.80 Tolerance mm : + - 0.05

Del. quantity

cm3/1000 strokes : 420.0

Tolerance

cm3/1000 strokes : +- 1.0

Check tolerance

cm3/1000s. : **←** 5.0

	Tolerance mm : +- 1.30
Spreed	
Tolerance cm3/1000 strokes : 6.0	FULL LOAD DELIVERY AT FULL LOAD STOP  Rated speed rpm : 900
Check tolerance cm3/1000s. : 10.5	Aneroid pressure hPa : 900 Del. quantity
750	cm3/1000 strokes : 420.0 Tolerance
Rated speed rpm : 350	cm3/1000 strokes : ← 1.0 Check tolerance
Rack travel in mm : 4.20 + Tolerance mm : + 0.10 + Del. quantity	cm3/1000S. : ← 5.0 Spreed Tolerance
cm3/1000 strokes : 25.0	cm3/1000 strokes : 6.0 Check tolerance
cm3/1000 strokes : + 3.0 Check tolerance	cm3/1000s. : 10.5
cm3/1000s. : + 7.0 +	
Tolerance cm3/1000 strokes : 9.5	CONTROL LEVER
Check tolerance cm3/1000s. : 13.0	control lever position degree : 115.0
	tolerance degree : + 4.0
(B) SETTING OF INJECTION PUMP WITH GOVERNOR	RATED SPEED rack travel mm : 13.80
	Rated speed rpm . 945 Tolerance 1/min : + 5
GUIDE SLEEVE TRAVEL	
Rated speed rpm : 958 # guide sleeve	rack travel mm : 4.00 Rated speed rpm : 1065 Tolerance 1/min : + 15
travel mm : 3.29	
Tolerance min : + 0.15	rack travel mm : 0.50 Tolerance mm : ← 0.50
Rated speed rpm : 350 guide sleeve	Rated speed rpm : 1150
Travel mm : 2.31 Tolerance mm : + 0.20	
Rated speed rpm : 690 guide sleeve	LOW IDLE
travel mm : 5.08	
Tolerance mm : + 0.25	control lever position degree : 67.0
Rated speed rpm : 1160 + guide sleeve +	tolerance degree : + 4.0
travel mm : 11.50 + Tolerance mm : + 0.50 +	Setting point w/out bumper spring
	Rated speed rpm : 200
GUIDE SLEEVE POSITION	CRT mm min. :> 6.00
Rated speed rpm : 1011	Testing:
Rack travel in mm: 13.80	Rated speed rpm : 350

B09

rack travel mm 4.20 : -0.10Tolerance ma 2.00 rack travel am Rated speed rpm 490 : +-30 Tolerance 1/min Rated speed rom 415 TORQUE CONTROL Rated speed rpm 900 : rack travel mm 14.80 : : + 0.05Tolerance mm 500 Rated speed rpm rack travel mm 14.85 Tolerance mm : + 0.10ANEROID/ALTITUDE COMPENSATOR TEST SETTING Rated speed rpm 600 900 Pressure hPa 14.80 rack travel mos : +- 0.05 Tolerance mm Rated speed rpm 600 Pressure hPa 10.00 rack travel mms : : + 0.10Tolerance mm **MEASUREMENT** 600 Rated speed rpm Pressure hPa 250 rack travel mm 10.80 : + 0.20 Tolerance mm 320 Pressure hPa rack travel mm 12.60 : + 0.05Tolerance mm FUEL DELIVERY CHARACTERISTICS Aneroid pressure hPa 500 Rated speed rpm

Spreed Tolerance cm3/1000 strokes : 6.0 Check tolerance cm3/1000s. 10.5 STARTING FUEL DELIVERY ESS test: With 24 V solenoid activated, rack must reach start position in max. control lever setting. Rated speed rpm 100 rack travel mm 20.50 Tolerance mm : **←** 0.50 LOW IDLE Rated speed rpm : 350 4.20 Rack travel in mm : Tolerance mm 0.10 Del. quantity cm3/1000 strokes : 25.0 Tolerance cm3/1000 strokes : + 3.0 Check tolerance cm3/1000s. 7.0 Spreed Tolerance

End of test specification sheet

9.5

13.0

cm3/1000 strokes :

Check tolerance cm3/1000s.

B10

Tolerance

cm3/1000s.

Check tolerance

cm3/1000 strokes : +-

1.0

: +- 5.0

#### Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 13.11.97 Test oil : ISO 4113

Combination No. : 0 402 746 636

Injection pump

Pump designation : PES6P120A720RS7445 EP type number : 0 412 726 973

Governor

Governer design. : RQ300/1100PA1360 Governer no. : 0 421 801 824

Cust. part No. : 618.00.08.0048

Customer—spec. information Customer : SNF Motor : WD618.42 Power KW : 310.0

# TEST BENCH REQUIREMENTS

Inlet line : 4.1

Test oil inlet

temp. °C : 40
Tolerance °C : +- 2.0

Overflow valve : 1 457 413 010

Inlet press. bar : 1.5 Tolerance bar : + 0.1

Overflow quantity

min. l/h : 155 Tolerance l/h : ← 20.0

Test nozzle holde

assembly : 1 688 901 105

Opening pressure

bar : 208.5 Tolerance bar : +- 1.5 Test lines : 1 680 750 089

Outside diameter : 8.0

x inside diameter: 3.0 x length mm : 600

# REMARKS

(A) INJECTION PUMP SETTING VALUES

Set equal delivery quant.

per values \_\_\_\_\_

# BEGINNING OF DELIVERY

Test pressure bar : 26.0 Tolerance bar : + 1.0

Prestroke mm : 4.40 Tolerance mm : + 0.05

Check

tolerance mm : + 0.10

Rack travel in mm : 15.00 Tolerance mm : + 0.50

Firing order : 1-5-3-6-2-4

Phasing : 0-60-120-180-240

: -300

Tolerance :  $\leftarrow$  0.50

Check

tolerance \*NW : + 0.75

Start of delivery blocking

Tolerance :  $\leftarrow$  0.10

Check

tolerance \*NW : + 0.75

Barrel no. : 1

BASIC SETTING

Rated speed rpm : 1100

Rack travel in mm: 14.80
Tolerance mm: + 0.05

Del. quantity cm3/1000 strokes	: 274.0	Tolerance mm : + 0.10
Tolerance		Rated speed rpm : 500 guide sleeve
cm3/1000 strokes	: <b>←</b> 1.0	travel mm : 6.00
		Tolerance mm : + 0.10
Check tolerance	: + 4.0	Rated speed rpm : 1290
		guide sleeve
Spreed		travel mm : 11.50
		Tolerance mm : + 0.50
Tolerance	5 A	†
cm3/1000 strokes	: 5.0	CHARL SI FEME DOCATAON
Check tolerance		GUIDE SLEEVE POSITION
cm3/1000s.	: 9.0	I
CHO7 10005.	. 7.0	control lever
		position degree : 109
		Rated speed rpm : 600
Rated speed rpm	: 300	
		Rack travel in mm: 20.00
Rack travel in mm		+ Tolerance mm : + 0.80
Tolerance mm	: <del>+</del> 0.10	+
Del. quantity		
cm3/1000 strokes	: 20.0	+ FULL LOAD DELIVERY AT FULL LOAD STOP
Tolerance		Total analysis 4400
cm3/1000 strokes Check tolerance	: + 3.0	Rated speed rpm : 1100
cm3/1000s.	: ← 6.0	+ Aneroid pressure + hPa : 1200
Spreed	. +- 0.0	Del. quantity
Tolerance		- cm3/1000 strokes : 274.0
cm3/1000 strokes	: 8.0	Tolerance
Check tolerance		+ cm3/1000 strokes : + 1.0
cm3/1000s.	: 12.0	+ Check tolerance
		+ cm3/1000s. : $+$ 4.0
***		+ Spreed
(B) SETTING OF IN	NECTION PUMP	Tolerance
WITH GOVERNOR		- cm3/1000 strokes : 5.0 - Check tolerance
		- cm3/1000s. : 9.0
GUIDE SLEEVE TRAV	(E)	T (ms/ 1860s ).6
ANTAC ACCELC 11/UL	<b>-</b>	1
Rated speed rpm	: 1158	+
guide sleeve		CONTROL LEVER
travel mm	: 6.35	†
Tolerance mm	: +- 0.15	control lever
	700	+ position degree : 99.0
Rated speed rpm	: 300	tolerance degree : + 4.0
guide sleeve	: 1.74	+ RATED SPEED
travel mm Tolerance mm		+ rack travel mm : 13.80
IULEIGILE MH	. , 0.20	Rated speed rpm : 1153
Rated speed rpm	: 1100	Tolerance 1/min : +- 8
guide sleeve		-
travel mm	: 6.00	rack travel mm : 4.00
Tolerance mm	: + 0.10	+ Rated speed rpm : 1225
		Tolerance 1/min : +- 15
Rated speed rpm	: 425	+
guide sleeve		rack travel mm : 0.70
travel mm	: 5.00	† Tolerance mm : +- 0.70

Rated speed rpm	: 1350
LOW IDLE	
control lever position degree tolerance degree	: 76.0 : + 4.0
Setting point w/o	ut bumper spring
Rated speed rpm	: 200
CRT men min.	: > 10.00
Testing:	
Rated speed rpm rack travel mm Tolerance mm	: 300 : 8.20 : ← 0.10
rack travel mm Rated speed rpm Tolerance 1/min	: 425
TORQUE CONTROL Rated speed rpm rack travel mm Tolerance mm	: 14.80 : +- 0.05
Rated speed rpm rack travel mm Tolerance mm	: 700 : 14.85 : + 0.10
ANEROID/ALTITUDE COMPENSATOR TEST	
SETTING	
Rated speed rpm Pressure hPa rack travel mm Tolerance mm	: 500 : 1200 : 14.80 : ← 0.10
Rated speed rpm Pressure hPa rack travel mm Tolerance mm	: 500 : - : 11.90 : + 0.20
MEASUREMENT	
Rated speed rpm	: 500
Pressure hPa	: 700

rack travel mm Tolerance mm	: 14.10 : + 0.05
Pressure hPa	: 375
rack travel mm Tolerance mm	: 12.40 : + 0.20
roterance mm	: 0.20
FUEL DELIVERY CHA	ARACTERISTICS
- The state of the	
Aneroid pressure hPa	: 1200
Rated speed rpm	: 700
Del. quantity cm3/1000 strokes	: 288.0
Tolerance	: 288.0
cm3/1000 strokes	: <b>←</b> 3.0
Check tolerance cm3/1000s.	: ← 6.0
Aneroid pressure hPa	: -
Rated speed rpm	500
Del. quantity cm3/1000 strokes	: 176.0
Tolerance	. 110.0
cm3/1000 strokes	: +- 1.0
Check tolerance cm3/1000S.	: +- 4.0
STARTING FUEL DEL	IVERY
Rated speed rpm	: 100
rack travel mm Tolerance mm	: 11.90 : + 0.30
Del. quantity	
cm3/1000 strokes Tolerance	: 125.0
cm3/1000 strokes	: <del>+</del> 10.0
Check tolerance	44.0
cm3/1000s.	: +- 14.0
LOW IDLE	
Rated speed rpm	: 300
Rack travel in mm	
Tolerance mm	: + 0.10
Del. quantity cm3/1000 strokes	: 20.0
Tolerance	7.0
cm3/1000 strokes	: <del>←</del> 3.0

Check tolerance cm3/1000s. : +- 6.0

Spreed

Tolerance cm3/1000 strokes : 8.0 Check tolerance cm3/1000s. : 12.0

#### Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 04.11.97 Test oil : ISO 4113

Combination No. : 0 402 746 637

Injection pump

Pump designation : PES6P12OA32ORS7449

EP type number : 0 412 726 974

6overnor

Governer design. : RQ275/1050PA1372 Governer no. : 0 421 801 830

Cust. part No. :

Customer spec. information

Customer : RENAULT V.I.
Motor : MI7R062045 B41

Power KW : 186.0

# TEST BENCH REQUIREMENTS

Inlet line : 3.1

Test oil inlet

temp. \*C : 40
Tolerance \*C : +- 2.0

Overflow valve : 2 417 413 078

Inlet press. bar : 2.5 Tolerance bar : + 0.1

Overflow quantity

min. L/h : 320 Tolerance L/h : +- 20.0

Test nozzle holde

assembly : 1 688 901 101

Opening pressure

bar : 208.5 Tolerance bar : + 1.5 Test lines : 1 680 750 008

Outside diameter : 6.0

x inside diameter: 2.0

x length mm :

600

# REMARKS

(A) INJECTION PUMP SETTING VALUES

Set equal delivery quant.

per values \_\_\_\_

# BEGINNING OF DELIVERY

Test pressure bar : 26.0 Tolerance bar : + 1.0

Prestroke mm : 4.70
Tolerance mm : + 0.05

Check

tolerance mm : + 0.10

Rack travel in mm: 20.25
Tolerance mm: + 0.75

Firing order : 1-5-3-6-2-

: 4

Phasing : 0-60-120-180-240

: -300

Tolerance :  $\leftarrow$  0.50

Check

tolerance \*NW : + 0.75

Start of delivery mark

\*NW after s.o.d. : -1.45

Tolerance : + 0.50

Check

tolerance \*NW : + 0.75

Barrel no. : 1

## CRT ZERO POSITION

Rack travel in mm: 12.50 Tolerance mm: + 0.05

		+ Del. quantity	. 407.0
BASIC SETTING	· · · · · · · · · · · · · · · · · · ·	+ cm3/1000 strokes + Tolerance	: 193.0
DEDIC SETTING		+ cm3/1000 strokes	: +- 1.0
Rated speed rpm	: 600	+ Check tolerance	
		+ cm3/1000s.	: <del>-</del> 4.0
Del. quantity	447 -	+ Spreed	
cm3/1000 strokes	: 193.0	† Tolerance	
Tolerance		+ cm3/1000 strokes + Check tolerance	: 5.0
cm3/1000 strokes	· - 10	cm3/1000s.	: 9.0
CHE TOOC STORES	• • • • • • • • • • • • • • • • • • • •	+	. 7.5
Check tolerance		+	
cm3/1000s.	: +- 4.0	+ RATED SPEED	
		+ rack travel mm	
Spreed		+ Rated speed rpm	
Tolerance		† Tolerance 1/min	: <del>←</del> 5
cm3/1000 strokes	: 5.0	rack travel mm	: -12.00
THE PERCHASI		+ Tolerance mm	: + 0.50
Check tolerance		+ Rated speed rpm	and the second s
cm3/1000s.	: 9.0	+	
		. 🕇	
		†	
Rated speed rom	: 275	LOW ICLE	
Nated Speed This	. 275	1	
Rack travel in ma	·: -6.80	+ Testing:	
Tolerance mm		+	
Del. quantity		+ Rated speed rpm	
cm3/1000 strokes	: 31.0	+ rack travel mm	
Tolerance		- Tolerance mm	: + 0.10
cm3/1000 strokes Check tolerance	: - 2.0	Ī	
cm3/1000s.	: <del></del> 5.0	TORQUE CONTROL	
Spreed		+ Rated speed rpm	: 600
Tolerance		+	
cm3/1000 strokes	: 8.0	+ Rated speed rpm	: 1050
Check tolerance	40.0	† Tolerance mm	: +- 0.10
cm3/1000s.	: 12.0	†	
		ANEROID/ALTITUDE	
(B) SETTING OF IN	LIECTION PLIMP	COMPENSATOR TEST	
WITH GOVERNOR	102012011	+	
		+	
		+ SETTING	
01757 01 5515 0007	TTAN	† Dated aread and	. Emn
GUIDE SLEEVE POSI	LITON	Rated speed rpm Pressure hPa	• 1000
		T Pressure fira	. 1000
control lever		Rated speed rpm	: 500
position degree	: 109	+ Pressure hPa	: -
		+ rack travel mm	: -2.00
		+ Tolerance mm	: <b>←</b> 0.20
FULL LOAD DELIVER	RY AT FULL LOAD STOP	ME A CLIDENET IT	
Dated aread	: 600	MEASUREMENT	
Rated speed rpm Aneroid pressure		Rated speed rpm	: 500
hPa	: 1000	+ Macca opeca . pm	
	· <del>-</del>	Pressure hPa	: 320
		•	

rack travel mma	: -0.85
Tolerance mma	: + 0.15
Pressure hPa	: 160
rack travel non	: -1.70
Tolerance non	: + 0.05
Start interlock	
Rated speed rpm	: > 100
Rated speed rpm	: < 195
Check speed 1/min Check	: > 80
speed 1/min	: < 215

Aneroid pressure			
hPa	:	11	000
Rated speed rpm	:	11	050
Del. quantity			
cm3/1000 strokes	:	•	198.0
Tolerance			
cm3/1000 strokes	:	+-	3.0
Check tolerance			
cm3/1000s.	:	+-	6.0

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure			
hPa	:		***
Rated speed rpm	:		500
bel. quantity			
cm3/1000 strokes	:		147.0
Tolerance			
cm3/1000 strokes	:	+-	1.0
Check tolerance			
cm3/1000s.	:	+-	4.0

STARTING FUEL DELIVERY		
Rated speed rpm Del. quantity	: 100	
	: 150.0	
cm3/1000 strokes	: <b>←</b> 15.0	
Check tolerance cm3/1000s.	: + 19.0	

LÓW	IDLE	:

Rated speed rpm	: 275
Rack travel in man Tolerance man Del. quantity	: -6.80 : +- 0.10
cm3/1000 strokes	: 31.0
Tolerance cm3/1000 strokes Check tolerance	: +- 2.0
cm3/1000s. Spreed	: 5.0
Tolerance cm3/1000 strokes Check tolerance	: 8.0
cm3/1000s.	: 12.0

### Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 04.11.97 Test oil : ISO 4113

Combination No. : 0 402 746 638

Injection bump

Pump designation : PES6P120A320RS7449

EP type number : 0 412 726 974

Governor

Governer design. : RQ275/1050PA1373 Governer no. : 0 421 801 831

Cust, part No. :

Customer-spec. information

Customer : RENAULT V.I.
Motor : MI7R062045 C41

Power KW : 152.0

#### TEST BENCH REQUIREMENTS

Inlet line : 3.1

Test oil inlet

temp. °C : 40
Tolerance °C : + 2.0

Overflow valve : 2 417 413 078

Inlet press. bar : 2.5 Tolerance bar :  $\leftarrow 0.1$ 

Overflow quantity

min. l/h : 220 Tolerance l/h : → 10.0

Test nozzle holde

assembly : 1 688 901 101

Opening pressure

bar : 208.5 Tolerance bar : + 1.5 Test lines : 1 680 750 008

Outside diameter : 6.0

x inside diameter : 2.0 x length mm : 660

REMARKS

(A) INJECTION PUMP SETTING VALUES

Set equal delivery quant.

per values \_\_\_\_

BEGINNING OF DELIVERY

Test pressure bar : 26.0 Tolerance bar : + 1.0

Prestroke mm : 4.70 Tolerance mm : + 0.05

Check

tolerance mm : + 0.10

Rack travel in mm : 20.25 Tolerance mm : + 0.75

Firing order : 1-5-3-6-2-

: 4

Phasing : 0-60-120-180-240

: -300 Tolerance : +- 0.50

Check

tolerance \*NW : +- 0.75

Start of delivery mark

\*NW after s.o.d. : -0.95

Tolerance : + 0.50

Check

tolerance \*NW :  $\leftarrow$  0.75

Barrel no. : 1

CRT ZERO POSITION

Rack travel in mm : 11.70  Tolerance mm : + 0.05	Aneroid pressure hPa : 1000 Del. quantity cm3/1000 strokes : 176.0
BASIC SETTING -	Tolerance cm3/1000 strokes : + 1.0
Rated speed rpm : 1050	Check tolerance cm3/1000s. : +- 4.0 Spreed
Del. quantity cm3/1000 strokes : 176.0	Tolerance cm3/1000 strokes : 5.0
Tolerance cm3/1000 strokes : + 1.0	Check tolerance cm3/1000s. : 9.0
Check tolerance cm3/1000s. : + 4.0	RATED SPEED : -1.00
Spreed	Rated speed rpm : 1115 Tolerance 1/min : +- 5
Tolerance cm3/1000 strokes : 5.0	rack travel mm : -1%.20 Tolerance mm : +- 0.50 Rated speed rpm : 1350
Check tolerance cm3/1000s. : 9.0	
	LOW IDLE
Rated speed rpm : 275	† Testing:
Rack travel in mm: -6.10 Tolerance mm: + 0.10	Rated speed rpm : 275
Del. quantity cm3/1000 strokes : 28.0 Tolerance	rack travel mm : -6.10 Tolerance mm : + 0.10
cm3/1000 strokes : + 2.0 Check tolerance	TORQUE CONTROL
cm3/1000s. : +- 5.0 · Spreed	Rated speed rpm : 1050
Tolerance cm3/1000 strokes : 8.0 check tolerance	Rated speed rpm : 600 rack travel mm : 0.80 Tolerance mm : + 0.10
cm3/1000s. : 12.0	
(B) SETTING OF INJECTION PUMP WITH GOVERNOR	ANEROID/ALTITUDE COMPENSATOR TEST
	SETTING
GUIDE SLEEVE POSITION	Rated speed rpm : 500 Pressure hPa : 1000
control lever position degree : 109	rack travel mm : 1.00 Tolerance mm : + 0.10
FULL LOAD DELIVERY AT FULL LOAD STOP	Rated speed rpm : 500 Pressure hPa : - rack travel mm : -1.00
Rated speed rpm : 1050	Tolerance mm : +- 0.20

B19

## MEASUREMENT

Rated speed rpm	:	500
Pressure hPa rack travel mma Tolerance mma	: : : +-	280 0.65 0.15
Proceure hPa	•	160

Pressure hPa	:		160
rack travel mm	:		-0.15
Tolerance mm	:	+	0.05

# Start interlock

Rated speed rpm : < 195		speed speed		•	> <	100 195
-------------------------	--	----------------	--	---	--------	------------

# Check

speed	1/min	; >	80
Observation of the			

# Check

4.10011				
speed	1/min	:	<	215

# FUEL DELIVERY CHARACTERISTICS

Anerold pressure		
hPa	:	1000
Rated speed rpm	:	600
Del. quantity		
cm3/1000 strokes		103 (

cm3/1000	strokes	:	193.0
Tolerance			

cm3/1000 strokes :  $\leftarrow$  3.0

Check tolerance

cm3/1000s. : +- 6.0

# Aneroid pressure

hPa	:	-
Rated speed rpm	:	500
Del. quantity		
cm3/1000 strokes	:	149.0

Tolerance cm3/1000 strokes : +- 1.0

Check tolerance cm3/1000s. : <del>+-</del> 4.0

## STARTING FUEL DELIVERY

Rated speed rpm	:	100
Del. quantity		

cm3/1000 strokes : 155.0

Tolerance

cm3/1000 strokes : + 15.0

Check tolerance

: + 19.0 cm3/1000s.

# LOW IDLE

Rated speed rpm	:	275	
Rack travel in mm Tolerance mm Del. quantity	: +-	-6.10 0.10	
cm3/1000 strokes	:	28.0	
Tolerance cm3/1000 strokes	: +-	2.0	
Check tolerance cm3/1000s.	: +-	5.0	
Spreed Tolerance			
cm3/1000 strokes Check tolerance	:	8.0	
cm3/1000s.	:	12.0	

Note remarks

Refer to Service Info for test and adjustment instructions. See microcard(s) W400/...

Edition Test oil

: 03.11.97 : TSO 4113

Combination No. : 0 402 746 639

Injection pump

Pump designation : PES6P120A320RS7359

: -3

EP type number : 0 412 726 975

Governor

Governer design. : RQ275/1050PA1217-2

Governer no.

: 0 421 801 832

Cust. part No. : CCEP 5172 66-255

Customer-spec. information

Customer

: RENAULT V.I.

Motor

: MIDRO62045 J41

Power KW

: 210.0

TEST BENCH REQUIREMENTS

Inlet line : 3.1

Test oil inlet

tempo. °C

40

Tolerance °C

Overflow valve : 2 417 413 078

Inlet press. bar :

Tolerance bar : + 0.1

Test nozzle holde

assembly

: 1 688 901 105

Opening pressure

bar

: 208.5

Tolerance bar : + 1.5

Test Lines : 1 680 750 089

Outside diameter : 8.0

x inside diameter :

3.0

x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES

Set equal delivery quant.

per values \_\_\_\_

BEGINNING OF DELIVERY

Test pressure bar : 26.0 Tolerance bar : + 1.0

Prestroke mm : 4.80 Tolerance mm : + 0.05

Check

: + 0.10 tolerance am

Rack travel in mm: 20.25

Tolerance mm:  $\leftarrow$  0.75

Firing order : 1-5-3-6-2-

: 4

Phasing : 0-60-120-180-240

: -300

: ← 0.5C Tolerance

Check

tolerance \*NW : + 0.75

Start of delivery mark

\*NW after s.o.d. : -0.45

Tolerance : +- 0.50

Check

tolerance \*NW : **←** 0.75

: 1 Barrel no.

CRT ZERO POSITION

Rack travel in mm: 13.40

Tolerance m : +- 0.05

BASIC SETTING

Rated speed rpm : 600  Tolerance mm : + 0.05  Del. quantity cm3/1000 strokes : 285.0  Tolerance cm3/1000 strokes : + 1.0	Tolerance cm3/1000 strokes : +- 1.0 Check tolerance cm3/1000s. : +- 4.0 Spreed Tolerance cm3/1000 strokes : 5.0 Check tolerance cm3/1000s. : 9.0
Check tolerance cm3/1000s. : + 4.0	- RATED SPEED - rack travel mm : -1.00 - Rated speed rpm : 1115
Spreed	Tolerance 1/min : + 15
Tolerance cm3/1000 strokes : 5.0	rack travel mm : -12.90 - Tolerance mm : +- 0.50 - Rated speed rpm : 1350
Check tolerance cm3/100Cs. : 9.0	- -
	- LOW IDLE
Rated speed rpm : 275	- Tooting:
Rack travel in mm: -6.90	- Testing: -
Tolerance ram : + 0.10	- Rated speed rpm : 275
Del. quantity	- rack travel mm : -6.90
cm3/1000 strokes : 27.0	- Tolerance mm : +- 0.10
Tolerance	•
cm3/1000 strokes : +- 2.0 +	- TORQUE CONTROL
Check tolerance	- Rated speed rpm : 600
Spreed	- Tolerance mm : +- 0.05
Tolerance	•
cm3/1000 strokes : 8.0	- Rated speed rpm : 1050
Check tolerance	- Tolerance mm : $\leftarrow$ 0.10
cm3/1000s. : 12.0	
(B) SETTING OF INJECTION PUMP WITH GOVERNOR	- ANEROID/ALTITUDE - COMPENSATOR TEST
<del>-</del>	- SETTING
GUIDE SLEEVE POSITION	- - Rated speed rpm : 500
GOIDE SPEEAE LOSTLINA	- Pressure hPa : 1000
control lover	- - Rated speed rpm : 500
control lever + 109 + 109	- Rated speed rpm : 500 - Pressure hPa : -
poortion, acg. cc	- rack travel mm : -2.85
	- Tolerance mm : + 0.20
FULL LOAD DELIVERY AT FULL LOAD STOP	- - Measurement
Rated speed rpm : 600	
Aneroid pressure	- Rated speed rpm : 500
hPa : 1000 - Del. quantity -	- - Pressure hPa : 520
cm3/1000 strokes : 285.0	- ressure hra : 520 - rack travel mm : -0.60
1	

B22

Tolerance mm	: ← 0.15
Pressure hPa rack travel mm	: 240 : -2.20
Tolerance ma	: ← 0.05
Start interlock	
Rated speed rpm	: > 100
Rated speed rpm	
Check speed 1/min	:> 80
Check	
speed 1/min	: < 215
FUEL DELIVERY CHA	RACTERISTICS
Aneroid pressure	
hPa Rated speed rpm	: 1000 : 1050
Del. quantity	
cm3/1000 strokes Tolerance	: 293.0
cm3/1000 strokes	: <b>←</b> 3.0
Check tolerance cm3/1000s.	: +- 6.0
Aneroid pressure hPa	<b>:</b> -
Rated speed rpm Del. quantity	: 500
cm3/1000 strokes	: 150.0
Tolerance cm3/1000 strokes	: + 1.0
Check tolerance cm3/1000s.	: + 4.0
CM3/ 10003.	4.0
STARTING FUEL DEL	.IVERY
Rated speed rpm	: 100
Del. quantity cm3/1000 strokes	: 145.0
Tolerance cm3/1000 strokes	: ← 15 N
Check tolerance	
cm3/1000s.	: +- 19.0
LOW IDLE	

Rack travel in mm Tolerance mm	:	+	-6.90 0.10
Del. quantity cm3/1000 strokes Tolerance	:		27.0
cm3/1000 strokes Check tolerance	:	+-	2.0
cm3/1000s.	:	+-	5.0
Tolerance			8.0
Check tolerance	•		
cm3/1000s.	:		12.0

#### Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 03.11.97 Test oil : ISO 4113

Combination No. : 0 402 746 957

Injection pump

Pump designation : PES6P120A720RS7292

: -1

EP type number : 0 412 726 939

Governor

Governer design. : RGV350...1150PA1074

: -2K

Governer no. : 0 421 815 367

Cust. part No. : 0250741002

Customer—spec. information Customer : MB-NFZ Motor : 0M366LA Power KW : 157.0

# TEST BENCH REQUIREMENTS

Inlet line : 4.1

Test oil inlet

temp. \*C : 40
Tolerance \*C : + 2.0

Overflow valve : 1 417 413 047

Inlet press. bar : 1.5 Tolerance bar : + 0.1

Overflow quantity

min. l/h : 100 Tolerance l/h : + 20.0

Test nozzle holde

assembly : 1 688 901 105

Opening pressure

bar : 208.5

Tolerance bar : + 1.5

Test lines : 1 680 750 075

Outside diameter : 8.0

x inside diameter: 3.0 x length mm : 1000

## REMARKS

(A) INJECTION PUMP SETTING VALUES

Set equal delivery quant.

per values \_\_\_\_\_

# BEGINNING OF DELIVERY

Test pressure bar : 26.0 Tolerance bar : + 1.0

Prestroke mm : 4.00
Tolerance mm : + 0.05
Check

tolerance mm : + 0.10

Rack travel in mm : 20.50 Tolerance mm : + 0.50

Firing order : 1-5-3-6-2-

4

Phasing : 0-60-120-180-240

: -300 Tolerance : + 0.50

Check

tolerance \*NW : + 0.75

Start of delivery blocking

\*NW after s.o.d. : 3.30 Tolerance : + 0.10

Check

tolerance  $^{\circ}NW$  :  $\leftarrow$  0.75

Barrel no. : 1

BASIC SETTING

Rated speed rpm : 1150	guide sleeve travel mm : 5.56 Tolerance mm : + 0.25
Rack travel in mm: 14.10 Tolerance mm: : + 0.05	Rated speed rpm : 550 guide sleeve travel mm : 3.17
Del. quantity - cm3/1000 strokes : 269.0 -	Tolerance mm : + 0.25  Rated speed rpm : 1480
Tolerance cm3/1000 strokes : + 1.0	guide sleeve travel mm : 13.50 Tolerance mm : + 0.50
Check talerance cm3/1000s. : + 4.0	GUIDE SLEEVE POSITION
Spreed	GOIDE SEELVE FOSITION
Tolerance cm3/1000 strokes : 8.0	control lever position degree : - 1 Rated speed rpm : 1331
Check tolerance : 12.0	Rack travel in mm : 13.50 Tolerance mm : + 1.30
Rated speed rpm : 350	FULL LOAD DELIVERY AT FULL LOAD STOP
Rack travel in mm: 6.00 Tolerance mm : ← 0.10	Rated speed rpm : 1150 Aneroid pressure
Del. quantity cm3/1000 strokes : 13.0 Tolerance	+ hPa : 1500 - Del. quantity - cm3/1000 strokes : 269.0
cm3/1000 strokes : + 3.0 Check tolerance cm3/1000s. : + 6.0	Tolerance cm3/1000 strokes : + 1.0 Check tolerance
Spreed Tolerance	cm3/1000s. : + 4.0 Spreed
cm3/1000 strokes : 4.0 Check tolerance cm3/1000s. : 8.0	Tolerance cm3/1000 strokes : 8.0 Check tolerance
	cm3/1000s. : 12.0
(B) SETTING OF INJECTION PUMP WITH GOVERNOR	CONTROL LEVER
GUIDE SLEEVE TRAVEL	control lever
Rated speed rpm : 1206 guide sleeve	position degree : 109.0 tolerance degree : +- 4.0
travel mm : 9.35 Tolerance mm : + 0.15	RATED SPEED - rack travel mm : 13.40 - Rated speed rpm : 1195
Rated speed rpm : 350 guide sleeve	Tolerance 1/min : + 5
travel mm : 1.53 Tolerance mm : + 0.20	+ rack travel mm : 4.00 + Rated speed rpm : 1325 + Tolerance 1/min : +- 15
Rated speed rpm : 855	Total Carlotte 17 Milli

rack travel mma	: 0.70
Tolerance mma	: ← 0.70
Rated speed rpma	: 1400
LOW IDLE	

#### FOM IDEE

control lever position degree : 65.0

tolerance degree : + 4.0

Setting point w/out bumper spring

Rated speed rpm : 250

CRT mm min. :> 6.90

Testing:

Rated speed rpm : 350 rack travel mm : 6.00 Tolerance mm : + 0.10

Rated speed rpm : 400

TORQUE CONTROL
Rated speed rpm : 1150
rack travel mm : 14.10
Tolerance mm : + 0.05

Rated speed rpm : 950

Rated speed rpm : 950
rack travel mm : 13.95
Tolerance mm : + 0.10

Rated speed rpm : 750 rack travel mm : 13.30 Tolerance mm : + 0.10

# ANEROID/ALTITUDE COMPENSATOR TEST

## SETTING

Rated speed rpm : 1150
Pressure hPa : 1500
rack travel mm : 14.10
Tolerance mm : + 0.05

Rated speed rpm : 1150
Pressure hPa : rack travel mm : 10.10
Tolerance mm : + 0.15

## MEASUREMENT

Rated speed rpm : 1150

Pressure hPa : 400 rack travel mm : 10.90 Tolerance mm : + 0.05

Pressure hPa : 850 rack travel mm : 12.50 Tolerance mm : + 0.15

Start interlock

Rated speed rpm : > 100 Rated speed rpm : < 200

Check

speed 1/min :> 80 Check

speed 1/min : < 250

# FUEL DELIVERY CHARACTERISTICS

Aneroid pressure 1500 Rated speed rpm 750 13.30 rack travel mm : + 0.10 Tolerance mm Del. quantity 265.0 cm3/1000 strokes : Tolerance cm3/1000 strokes : +-2.0 Check tolerance cm3/1000s. 5.0 Spreed Tolerance 8.0 cm3/1000 strokes : Check tolerance 12.0 cm3/1000s.

Aneroid pressure
hPa : Rated speed rpm : 500
Del. quantity
cm3/1000 strokes : 120.0
Tolerance
cm3/1000 strokes : + 1.0
Check tolerance

cm3/1000s. : + 4.0

#### STARTING FUEL DELIVERY

Set starting CRT at K-cam.

Rated speed rpm	: 100	
rack travel mm	: 13.50	
Tolerance mm	: <b>←</b> 0.20	
Del. quantity		
	: 150.0	
Tolerance		
cm3/1000 strokes	: <b>←</b> 15.0	
Check tolerance		
cm3/1000s.	: +- 19.0	

# LOW IDLE

Rated speed rpm : 350 6.00 Rack travel in mm : Tolerance mm : + 0.10 Del. quantity cm3/1000 strokes : 13.0 Tolerance cm3/1000 strokes : +-3.0 Check tolerance cm3/1000s.6.0 Spreed Tolerance cm3/1000 strokes : 4.0 Check tolerance cm3/1000s. 8.0

#### Note remarks

Refer to Service Info for test and adjustment instructions. See microcard(s) W400/...

Edition : 25.08.97 Test oil : ISO 4113

combination No. : 0 403 444 150

Injection pump

Pump designation : PES4MW100/720RS1212

EP type number : 0 413 404 114

Governor

6overner design. : RQV300...1300MW50

: -23

Governer no. : 0 420 083 269

Cust. part No. : 0250741602

Customer-spec. information Customer : MB-NFZ Motor : OM364LA

Power KW : 102.0

#### TEST BENCH REQUIREMENTS

Test oil inlet

temp. °C : 40
Tolerance °C : + 2.0

Overflow valve : 1 419 992 198

Inlet press. bar : 1.5

Test nozzle holde

assembly : 1 688 901 101

Opening pressure

bar : 208.5 Tolerance bar : + 1.5

Test Lines : 1 680 750 089

Outside diameter : 8.0

x inside diameter: 3.0

x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES

Set equal delivery quant.

per values \_\_\_\_

# BEGINNING OF DELIVERY

Test pressure bar : 31.0 Tolerance bar : + 1.0

Prestroke mm : 3.75
Tolerance mm : + 0.05

Check

tolerance mme : ← 0.10

Rack travel in mm : 10.50 Tolerance mm : + 1.50

Firing order : 1-3-4-2

Phasing : 0-90-180-270 Tolerance : +- 0.50

Check

tolerance \*NW : +- 0.75

#### BASIC SETTING

Rated speed rpm : 1300

Rack travel in mm: 13.15
Tolerance mm: + 0.05

Del. quantity

cm3/1000 strokes : 100.0

Tolerance

cm3/1000 strokes : +- 1.0

Check tolerance

cm3/1000s. :  $\leftarrow$  3.0

Spreed

Tolerance

cm3/1000 strokes : 3.5

**B28** 

Charl Antonio	t ·
Check tolerance cm3/1000s. : 6.0	t control lever
cm3/1000s. : 6.0	+ position degree : 112.0
	tolerance degree : + 4.0
	T total alice degree : 4.0
Rated speed rpm : 300	RATED SPEED
Nated Speed 1 pm . 300	rack travel mm : 12.10
Rack travel in mm : 6.40	+ Rated speed rpm : 1345
Tolerance mm : + 0.10	+ Tolerance 1/min : + 5
Del. quantity	+
cm3/1000 strokes : 12.0	+ rack travel mm : 4.00
Tolerance	+ Rated speed rpm : 1465
cm3/1000 strokes : + 2.0	+ Tolerance 1/min : +- 15
Check tolerance	+
cm3/1000s. : +- 4.5	rack travel mm : 0.50
Spreed	† Tolerance mm : + 0.50
Tolerance	Rated speed rpm : 1550
cm3/1000 strokes : 3.5	<b>†</b>
Check tolerance cm3/1000s. : 5.5	Ť
Cm5/ (UUU5. : 3.3	I
	LOW IDLE
(B) SETTING OF INJECTION PUMP	
WITH GOVERNOR	1
	† control lever
	position degree : 75.0
	- + tolerance degree : +- 4.0
GUIDE SLEEVE POSITION	†
	Setting point w/out bumper spring
control lever	Rated speed rpm : 200
position degree : - 1	T Raced speed (pill . 200
Rated speed rpm : 1350	CRT mm min. :> 8.00
Mateu specu i piii	
Rack travel in mm : 16.50	+ Testing:
Tolerance mm : + 1.30	+
	+ Rated speed rpm : 300
	- † rack travel mm : 6.40
FULL LOAD DELIVERY AT FULL LOAD STOP	+ Tolerance mm : + 0.10
D.A. d. an and ann. = 4700	†
Rated speed rpm : 1300	TORQUE CONTROL
Aneroid pressure hPa : 700	Rated speed rpm : 1300
Del. quantity	rack travel mm : 13.15
cm3/1000 strokes : 100.0	+ Tolerance mm : + 0.05
Tolerance	+
cm3/1000 strokes : + 1.0	+ Rated speed rpm : 600
Check tolerance	+ rack travel mm : 13.20
cm3/1000s. : +- 3.0	+ Tolerance mm : + 0.10
Spreed	†
Tolerance	AMERICA /ALTERIA
cm3/1000 strokes : 3.5	ANEROID/ALTITUDE
Check tolerance	+ COMPENSATOR TEST
cm3/1000s. : 6.0	I
	SETTING
	- +
CONTROL LEVER	A Rated speed rpm : 500
	+ Pressure hPa : 700
	rack travel mm : 13.20

Tolerance ma	: +- (	0.10
Rated speed rpm	: 50	00
Pressure hPa	:	-
rack travel am		9.90
Tolerance mm	: +- (	).10
MEASUREMENT		
Rated speed rpm	: 50	00
Pressure hPa	: 40	
rack travel mm	: 12 : +- (	2.70
Tolerance mm	: +- (	0.10
Pressure hPa	: 20	
rack travel mm	: 11	
Tolerance mm	: +- (	0.10
Start interlock		
		100
Rated speed rpm Rated speed rpm	: /	220
nated speed ipili	• `	220
Check		
		90
speed 1/min	: >	80
speed 1/min Check speed 1/min	: <	240
speed 1/min Check	: <	240
speed 1/min Check speed 1/min FUEL DELIVERY CHA Aneroid pressure	: <	240 STICS
speed 1/min Check speed 1/min FUEL DELIVERY CHA Aneroid pressure hPa	: < RACTERIS : 70	240 STICS
speed 1/min Check speed 1/min FUEL DELIVERY CHA Aneroid pressure hPa Rated speed rpm	: < RACTERIS : 70	240 STICS
speed 1/min Check speed 1/min FUEL DELIVERY CHA Aneroid pressure hPa Rated speed rpm Del. quantity	: <  RACTERIS  : 70 : 60	240 STICS 00
speed 1/min Check speed 1/min FUEL DELIVERY CHA Aneroid pressure hPa Rated speed rpm	: <  RACTERIS  : 70 : 60	240 STICS 00 00 37.5
speed 1/min Check speed 1/min  FUEL DELIVERY CHA  Aneroid pressure hPa Rated speed rpm Del. quantity cm3/1000 strokes Tolerance cm3/1000 strokes	: <  RACTERIS  : 70 : 60	240 STICS 00
speed 1/min Check speed 1/min FUEL DELIVERY CHA Aneroid pressure hPa Rated speed rpm Del. quantity cm3/1000 strokes Tolerance cm3/1000 strokes Check tolerance	: < RACTERIS : 70 : 60 : 8	240 STICS 00 00 37.5 1.5
speed 1/min Check speed 1/min FUEL DELIVERY CHA Aneroid pressure hPa Rated speed rpm Del. quantity cm3/1000 strokes Tolerance cm3/1000 strokes Check tolerance cm3/1000s.	: < RACTERIS : 70 : 60 : 8	240 STICS 00 00 37.5
speed 1/min Check speed 1/min FUEL DELIVERY CHA Aneroid pressure hPa Rated speed rpm Del. quantity cm3/1000 strokes Tolerance cm3/1000 strokes Check tolerance cm3/1000s. Spreed	: < RACTERIS : 70 : 60 : 8	240 STICS 00 00 37.5 1.5
speed 1/min Check speed 1/min  FUEL DELIVERY CHA  Aneroid pressure hPa Rated speed rpm Del. quantity cm3/1000 strokes Tolerance cm3/1000s. Spreed Tolerance cm3/1000 strokes	: < RACTERIS : 70 : 60 : 8	240 STICS 00 00 37.5 1.5
speed 1/min Check speed 1/min FUEL DELIVERY CHA Aneroid pressure hPa Rated speed rpm Del. quantity cm3/1000 strokes Tolerance cm3/1000s. Spreed Tolerance cm3/1000 strokes Check tolerance cm3/1000s.	: <  RACTERIS  : 70 : 60 : 8 : +- : +-	240 STICS 00 00 87.5 1.5 4.0
speed 1/min Check speed 1/min  FUEL DELIVERY CHA  Aneroid pressure hPa Rated speed rpm Del. quantity cm3/1000 strokes Tolerance cm3/1000s. Spreed Tolerance cm3/1000 strokes	: <  RACTERIS  : 70 : 60 : 8 : +- : +-	240 STICS 00 00 37.5 1.5 4.0
speed 1/min Check speed 1/min  FUEL DELIVERY CHA  Aneroid pressure hPa Rated speed rpm Del. quantity cm3/1000 strokes Tolerance cm3/1000s. Spreed Tolerance cm3/1000 strokes Check tolerance cm3/1000s. Spreed Tolerance cm3/1000s.	: <  RACTERIS  : 70 : 60 : 8 : +- : +-	240 STICS 00 00 87.5 1.5 4.0
speed 1/min Check speed 1/min  FUEL DELIVERY CHA  Aneroid pressure hPa Rated speed rpm Del. quantity cm3/1000 strokes Tolerance cm3/1000s. Spreed Tolerance cm3/1000 strokes Check tolerance cm3/1000s. Spreed Tolerance cm3/1000 strokes Check tolerance cm3/1000 strokes Check tolerance cm3/1000s. Aneroid pressure	: <  RACTERIS  : 70 : 60 : 8 : +- : +-	240 STICS 00 00 87.5 1.5 4.0
speed 1/min Check speed 1/min FUEL DELIVERY CHA Aneroid pressure hPa Rated speed rpm Del. quantity cm3/1000 strokes Tolerance cm3/1000s. Spreed Tolerance cm3/1000 strokes Check tolerance cm3/1000s. Spreed Tolerance cm3/1000s. Aneroid pressure hPa Rated speed rpm	: <  RACTERIS  : 70 : 60 : 8 : +- : +-	240 STICS 00 00 37.5 1.5 4.0 7.0
speed 1/min Check speed 1/min FUEL DELIVERY CHA Aneroid pressure hPa Rated speed rpm Del. quantity cm3/1000 strokes Tolerance cm3/1000s. Spreed Tolerance cm3/1000 strokes Check tolerance cm3/1000 strokes Check tolerance cm3/1000s. Aneroid pressure hPa Rated speed rpm Del. quantity	: <  RACTERIS  : 70 : 60 : 8 : +- : +- : : : 50	240 STICS 00 00 37.5 1.5 4.0 7.0
speed 1/min Check speed 1/min  FUEL DELIVERY CHA  Aneroid pressure hPa Rated speed rpm Del. quantity cm3/1000 strokes Tolerance cm3/1000s. Spreed Tolerance cm3/1000 strokes Check tolerance cm3/1000 strokes	: <  RACTERIS  : 70 : 60 : 8 : +- : +- : : : 50	240 STICS 00 00 37.5 1.5 4.0 7.0
speed 1/min Check speed 1/min  FUEL DELIVERY CHA  Aneroid pressure hPa Rated speed rpm Del. quantity cm3/1000 strokes Tolerance cm3/1000s. Spreed Tolerance cm3/1000 strokes Check tolerance cm3/1000 strokes Check tolerance cm3/1000 strokes Check tolerance cm3/1000 strokes Check tolerance cm3/1000 strokes Tolerance cm3/1000 strokes Tolerance hPa Rated speed rpm Del. quantity cm3/1000 strokes Tolerance	: <  RACTERIS  : 70 : 60 : 8 : +- : +- : :	240 STICS 00 00 37.5 1.5 4.0 7.0
speed 1/min Check speed 1/min  FUEL DELIVERY CHA  Aneroid pressure hPa Rated speed rpm Del. quantity cm3/1000 strokes Tolerance cm3/1000s. Spreed Tolerance cm3/1000 strokes Check tolerance cm3/1000 strokes Tolerance cm3/1000 strokes Tolerance cm3/1000 strokes Tolerance cm3/1000 strokes Tolerance	: <  RACTERIS  : 70 : 60 : 8 : +- : +- : : : 50 : 3 : +-	240 STICS 00 37.5 1.5 4.0 7.0 7.0
speed 1/min Check speed 1/min FUEL DELIVERY CHA Aneroid pressure hPa Rated speed rpm Del. quantity cm3/1000 strokes Tolerance cm3/1000s. Spreed Tolerance cm3/1000 strokes Check tolerance cm3/1000s. Spreed Tolerance cm3/1000 strokes Check tolerance cm3/1000 strokes Check tolerance cm3/1000 strokes Check tolerance cm3/1000 strokes Tolerance cm3/1000 strokes	: <  RACTERIS  : 70 : 60 : 8 : +- : +- : : : 50 : 3 : +-	240 STICS 00 00 37.5 1.5 4.0 7.0

STARTING FUEL DEL	IVERY		
Rated speed rpm Del. quantity	:	100	
cm3/1000 strokes Tolerance	:	90.0	
cm3/1000 strokes Check tolerance	: +-	5.0	
cm3/1000s.	: +-	8.0	
LOW IDLE			
Rated speed rpm	:	300	
Rack travel in mm Tolerance mm Del. quantity		6.40 0.10	
cm3/1000 strokes Tolerance	:	12.0	
cm3/1000 strokes	: +-	2.0	
Check tolerance cm3/1000s. Spreed	: +-	4.5	
	:	3.5	
Check tolerance cm3/1000s.	:	5.5	
			<del></del>

#### Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 23.01.98 Test oil : ISO 4113

Combination No. : F 000 409 212

Injection pump

Pump designation : PES6A95D41ORS2923 EP type number : F 000 400 401

Governor

Governer design. : RQV300...1300AB1326L

Governer no. : F 000 420 302

Cust. part No. : A 028 074 51 02

Customer-spec. information

Customer : MBB

Motor : OM 366LA/EuroI

Power KW : 150.0

# TEST BENCH REQUIREMENTS

Inlet line : 4.2

Test oil inlet

temp. °C : 40 Tolerance °C : +- 2.0

Overflow valve : 1 419 992 198

Inlet press. bar : 1.5

Test nozzle holde

assembly : 0 681 343 009

Opening pressure

bar : 173.5 Tolerance bar : + 1.5

Test lines : 1 680 750 015

Outside diameter : 6.0

x inside diameter: 3.0 x length mm : 600

#### REMARKS

(A) INJECTION PUMP SETTING VALUES

Set equal delivery quant.

per values \_\_\_\_

# BEGINNING OF DELIVERY

Test pressure bar : 26.0 Tolerance bar : + 1.0

Prestroke mm : 3.20
Tolerance mm : + 0.05

Check

tolerance mm : + 0.10

Rack travel in mm : 19.00 Tolerance mm : + 1.50

Firing order : 1-5-3-6-2-

: 4

Phasing : 0-60-120-180-240

: -300

Tolerance :  $\leftarrow$  0.50

Check

tolerance \*NW : + 0.75

#### BASIC SETTING

Rated speed rpm : 1300

Rack travel in mm : 13.45 Tolerance mm : + 0.05

Del. quantity

cm3/1000 strokes : 97.0

Tolerance

cm3/1000 strokes : + 1.0

Check tolerance

cm3/1000s. : +- 3.0

Spreed

Tolerance cm3/1000 strokes : 3.5	+ Tolerance mm : + 1.50
Check tolerance cm3/1000s. : 8.0	FULL LOAD DELIVERY AT FULL LOAD STOP
	Rated speed rpm : 1300 Aneroid pressure
	+ hPa : 900
Rated speed rpm : 300	+ Del. quantity + cm3/1000 strokes : 97.0
Rack travel in mm : 6.60	Tolerance
Tolerance man : + 0.10	cm3/1000 strokes : + 1.0
Del. quantity cm3/1000 strokes : 13.0	+ Check tolerance + cm3/1000s. :+ 3.0
Tolerance	+ Spreed
cm3/1000 strokes : + 2.0	Tolerance
Check tolerance	cm3/1000 strokes : 3.5
cm3/1000s. : + 4.5	Check tolerance
Spreed	- cm3/1000s. : 8.0
Tolerance	+
cm3/1000 strokes : 5.5	†
Check tolerance : 9.0	CONTROL LEVER
	control lever
(B) SETTING OF INJECTION PUMP	position degree : 113.0
WITH GOVERNOR	tolerance degree : +- 4.0
	TRATED SPEED
GUIDE SLEEVE TRAVEL	rack travel mm : 12.50
GOTAL OCCUPATIONS	Rated speed rpm : 1345
Rated speed rpm : 1500 guide sleeve	Tolerance 1/min : + 5
travel mm : 9.70	rack travel mm : 4.00
Tolerance mm : + 0.05	+ Rated speed rpm : 1520
	Tolerance 1/min : + 15
Rated speed rpm : 300	rack travel mm : 0.50
guide sleeve travel mm : 1.30	Tolerance mm : + 0.50
Tolerance mm : + 0.25	Rated speed rpm : 1640
toterance min	The control of the co
Rated speed rpm : 500 guide sleeve	<u>†</u>
travel mm : 2.90	
Tolerance mm : + 0.25	LOW IDLE
Rated speed rpm : 750	- control loven
guide sleeve travel mm : 4.80	control lever position degree : 73.0
travel mm : 4.80 Tolerance mm : + 0.10	tolerance degree : + 4.0
TO CET MILLE MILL . TE U. TO	- Cotto and degree 1 . The
GUIDE SLEEVE POSITION	Setting point w/out bumper spring
OOTAL OFFICE LOOTLINE	Rated speed rpm : 100
control lever	CRT mm min. :> 9.00
position degree : - 1 Rated speed rpm : 1366	Testing:
wared speed thus . 1200	

Rated speed rpm : 300

Rack travel in mm : 16.50

rack travel mm Tolerance mm	: 6.60 : ← 0.10
Rated speed rpm	: 355
TORQUE CONTROL Rated speed rpm rack travel mm Tolerance mm	: 1300 : 13.45 : + 0.05
Rated speed rpm rack travel mm Tolerance mm	: 750 : 13.45 : + 0.05
ANEROID/ALTITUDE COMPENSATOR TEST	
SETTING	
Rated speed rpm Pressure hPa rack travel mm Tolerance mm	: 500 : 900 : 13.50 : + 0.05
Rated speed rpm Pressure hPa	: 500
MEASUREMENT	
Rated speed rpm	: 500
Pressure hPa rack travel mm Tolerance mm	: 270 : 0.80 : + 0.10
Pressure hPa rack travel mm Tolerance mm	: 510 : 2.40 : + 0.10
Start interlock	
Rated speed rpm Rated speed rpm	: > 100 : < 210
Check speed 1/min Check	: > 80
speed 1/min	: < 230
FUEL DELIVERY CHA	RACTERISTICS
Aneroid pressure	

:	54.0	
: +-	1.0	
: +-	3.0	
	7 5	
:	3.5	
	8 N	
•	0.0	
IVERY		······································
:	100	
:	14.20	
; +-	0.10	
	400.0	
:	108.0	
	7.5	
: —	(.)	
• +-	10.0	
	<del></del>	
:	300	
:	6,60	
*	13.0	
: +-	2.0	
	, -	
: +-	4.5	
	5 5	
•	ر.ر	
:	9.0	
•	7.0	
	: +- :	: + 1.0 : + 3.0 : 3.5 : 8.0 IVERY : 100 : 14.20 : + 0.10 : 108.0 : + 7.5 : + 10.0 : 300 : + 0.10 : 13.0 : + 2.0 : + 4.5 : 5.5

End of test specification sheet

Aneroid pressure hPa hPa : -Rated speed rpm : 500

**c0**5

#### Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 23.01.98 Test oil : ISO 4113

Combination No. : F 000 409 888

Injection pump

Pump designation : PES5P120A

EP type number : 0

Governor

Governer design. : RQV300...950

Governer no. : 0

Cust. part No. :

Customer—spec. information Customer : MBB

## TEST BENCH REQUIREMENTS

Inlet line : 4.1

Test oil inlet

temp. °C : 40
Tolerance °C : + 2.0

Overflow valve : 1 417 413 047

Inlet press. bar : 2.3

Test nozzle holde

assembly : 1 688 901 105

Opening pressure

bar : 208.5 Tolerance bar : + 1.5

Test lines : 1 680 750 075

Outside diameter: 8.0

x inside diameter : 3.0 x tength mm : 1000 REMARKS

(A) INJECTION PUMP SETTING VALUES Set equal delivery quant.

per values \_\_\_\_

BEGINNING OF DELIVERY

Test pressure bar : 26.0 Tolerance bar : + 1.0

Prestroke mm : 4.70
Tolerance mm : + 0.05

Check

tolerance mm : +- 0.10

Rack travel in mm : 21.00

Firing order : 1-3-5-4-2

Phasing : 0-72-144-216-288

Tolerance : +- 0.50

Check

tolerance \*NW : + 0.75

BASIC SETTING

Rated speed rpm : 950

Rack travel in mm : 13.55 Tolerance mm : + 0.05

Del. quantity

cm3/1000 strokes : 271.0

Tolerance

cm3/1000 strokes : + 1.0

Check tolerance

cm3/1000s. : +- 4.0

Spreed

Tolerance

cm3/1000 strokes : 5.0

Check tolerance

cm3/1000s. : 9.0

**CO6** 

Ť	
Ratted speed rpm : 300	FULL LOAD DELIVERY AT FULL LOAD STOP
Rack travel in mm: 6.40	Rated speed rpm : 950
Tolerance mma : + 0.10	Aneroid pressure
Del. quantity	hPa : 1500
cm3/1000 strokes : 22.5	Del. quantity
Tolerance	cm3/1000 strokes : 271.0
cm3/1000 strokes : + 3.0	Tolerance
Check tolerance + 6.0 +	cm3/1000 strokes : + 1.0 Check tolerance
Spreed	cm3/1000s. : +- 4.0
Tolerance	Spreed
cm3/1000 strokes : 8.0	Tolerance
Check tolerance	cm3/1000 strokes : 5.0
cm3/1000s. : 12.0	Check tolerance
Ť	cm3/1000s. : 9.0
(B) SETTING OF INJECTION PUMP	
WITH GOVERNOR	
	CONTROL LEVER
CITE OF ENE TRAVEL	control lever
GUIDE SLEEVE TRAVEL	position degree : 121.0
Rated speed rpm : 700	tolerance degree : + 6.0
guide sceeve	total and degree
travel mm : 5.45	RATED SPEED
Tolerance mm : + 0.25	rack travel mm : 12.55
+	Rated speed rpm : 1040 _
Rated speed rpm : 1050	Tolerance 1/min : +- 5
guide steeve	rack travel mm : 4.00
travel mm : 7.80 + Tolerance mm : + 0.10 +	Rated speed rpm : 1145
Total a least 100 100	Tolerance 1/min : +- 15
Rated speed rpm : 300	
guide sleeve	rack travel mm : 0.50
travel mm : 0.75 +	Tolerance mm : + 0.50
Tolerance mm : + 0.25 +	Rated speed rpm : 1250
Poted speed speed 500	
Rated speed rpm : 500	
guide sleeve + travel mm : 3.55 +	<b>4</b> 6
Tolerance mm : + 0.25	LOW IDLE
+	
Rated speed rpm : 1165	
guide sleeve +	control lever
travel mm : 9.45	position degree : 79.0
Tolerance mm : + 0.25	tolerance degree : +- 6.0
	Setting point w/out bumper spring
GUIDE SLEEVE POSITION	
+	Rated speed rpm : 100
control toyon	CRT mm min. :> 10.00
control lever + position degree : -1 +	CAT INIU METTI / 10.00
Rated speed rpm : 1120	Testing:
Rack travel in mm: 16.50	Rated speed rpm : 300
Tolerance mm : + 1.30	rack travel mm : 6.40

	: <b>←</b> 0.10	
ated speed rpm	: 325	FUEL DELIVERY CHARACTERISTICS
ORQUE CONTROL		Aneroid pressure
ated speed rpm	: 950	+ hPa : 1500
ack travel ma		Rated speed rpm : 550
olerance ma		+ Del. quantity
ote:		cm3/1000 strokes : 302.0
ated speed rpm	: 550	+ Tolerance
ack travel mm		cm3/1000 strokes : + 2.0
olerance ma	: <b>←</b> 0.05	+ Check tolerance
		- cm3/1000s. : +- 5.0
ated speed rpm	: 750	+ Spreed
ack travel mm	: 13.95	+ Tolerance
olerance mm	: +- 0.05	+ cm3/1000 strokes : 8.0
	3,00	+ Check tolerance
ated speed rpm	: 850	- cm3/1000s. : 12.0
		T (mb/ 1000) 12.0
ack travel mm	13.30	†
olerance mm	: <b>←</b> 0.05	†
		+ Aneroid pressure
VEROID/ALTITUDE		+ Rated speed rpm : 750
OMPENSATOR TEST		+ rack travel mm : 13.95
AR BIOTHOR TEOT		Tolerance mm : + 0.05
		(
		† Del. quantity
TTING		- cm3/1000 strokes : 294.0
		+ Tolerance
ted speed rpm	: 500	+ cm3/1000 strokes : + 2.0
essure hPa		+ Check tolerance
ck travel mm		+ cm3/1000s. : + 5.0
Lerance mm		Spreed
Cel al ICe IMM	0.05	Tolerance
		cm3/1000 strokes : 8.0
ated speed rpm	: 500	
ressure hPa	: -	+ Check tolerance
		+ cm3/1000s. : 12.0
EASUREMENT		<u> </u>
ated speed rpm	: 500	Aneroid pressure
acco opeco (pm	. 500	+ hPa : 1500
secure kos	: 500	Rated speed rpm : 850
ressure hPa		
ick travel mm	: 1.10	+ Del. quantity
olerance mm	: <b>←</b> 0.15	+ cm3/1000 strokes : 286.0
		+ Tolerance
essure hPa	: 900	+ cm3/1000 strokes : + 2.0
	: 2.65	+ Check tolerance
ck travel mm	: 2.03	
		$\pm$ cm3/1000s. : $\pm$ 5.0
	: + 0.10	cm3/1000s. : +- 5.0
		Spreed
lerance mm		Spreed Tolerance
lerance mm		Spreed Tolerance cm3/1000 strokes : 8.0
lerance mm	: + 0.10	Spreed Tolerance cm3/1000 strokes : 8.0 Check tolerance
lerance mm art interlock	: + 0.10	Spreed Tolerance cm3/1000 strokes : 8.0
lerance mm art interlock ted speed rpm	: + 0.10 : > 100	Spreed Tolerance cm3/1000 strokes : 8.0 Check tolerance
art interlock ted speed rpm	: + 0.10 : > 100	Spreed Tolerance cm3/1000 strokes : 8.0 Check tolerance
art interlock ted speed rpm ted speed rpm	: + 0.10 : > 100	Spreed Tolerance cm3/1000 strokes : 8.0 Check tolerance cm3/1000s. : 12.0
lerance mm  art interlock  ted speed rpm ted speed rpm	: + 0.10 : > 100 : < 210	Spreed Tolerance cm3/1000 strokes : 8.0 Check tolerance cm3/1000s. : 12.0 Aneroid pressure
lerance mm  art interlock  ted speed rpm  ted speed rpm  eck eed 1/min	: + 0.10 : > 100	Spreed Tolerance cm3/1000 strokes : 8.0 Check tolerance cm3/1000s. : 12.0  Aneroid pressure hPa : -
lerance mm  art interlock  ted speed rpm  ted speed rpm  eck eed 1/min	: + 0.10 : > 100 : < 210 : > 80	Spreed Tolerance cm3/1000 strokes : 8.0 Check tolerance cm3/1000s. : 12.0  Aneroid pressure hPa : - Rated speed rpm : 500
erance mm  art interlock  ded speed rpm ded speed rpm deck ded 1/min	: + 0.10 : > 100 : < 210	Spreed Tolerance cm3/1000 strokes : 8.0 Check tolerance cm3/1000s. : 12.0  Aneroid pressure hPa : -

cm3/1000 strokes	: ←	1.0
Check tolerance cm3/1000s.	: +-	4.0
Spreed Tolerance		
cm3/1000 strokes Check tolerance	:	5.0
cm3/1000s.	:	9.0

# STARTING FUEL DELIVERY

Rated speed rpm : 100
Del. quantity
cm3/1000 strokes : 260.0
Tolerance
cm3/1000 strokes : + 10.0
Check tolerance
cm3/1000s. : + 14.0

# LOW IDLE

300 Rated speed rpm : Rack travel in mm : 6.40 Tolerance mm 0.10 Del. quantity cm3/1000 strokes : 22.5 Tolerance cm3/1000 strokes : + 3.0 Check tolerance cm3/1000s.: +- 6.0 Spreed Tolerance cm3/1000 strokes : 8.0 Check tolerance 12.0 cm3/1000s.

## Note remarks

Refer to Service Info for test and adjustment instructions. See microcard(s) W400/...

: 18.06.97 Edition : ISO 4113 Test oil

Combination No. : 0 400 863 020

Injection pump

Pump designation : PES3A95D410/3RS2905 EP type number : 0 410 893 996

Governor Governer design. : RSV325...1250A5C858L

Governer no. : 0 420 232 621

Cust. part No. : 0423 1592 KY

Customer-spec. information

Customer : KHD-DMI : F3L912/913 NEU Motor

Power KW : 40.5

# TEST BENCH REQUIREMENTS

Inlet line : 3.1

Test oil inlet

temp. °C 40 : +-Tolerance \*C 2.0

Overflow valve : 1 419 992 198

Inlet press. bar : 1.5

Test nozzle holde

: 0 681 343 009 assembly

Opening pressure

: 173.5 Tolerance bar

Test lines : 1 680 750 014

Outside diameter : 6.0

x inside diameter: 2.0 x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES

Set equal delivery quant.

per values \_\_\_\_\_

# BEGINNING OF DELIVERY

26.0 Test pressure bar : Tolerance bar : + 1.0

Prestroke mm : 3.00 : + 0.05Tolerance mm

Check tolerance mm

: + 0.10 Rack travel in mm: 10.50

Tolerance mm:  $\leftarrow$  1.50

Firing order : 1- 3- 2

: 0-120-240 Phasing : +- 0.50 Tolerance

Check

tolerance \*NW : ← 0.75

# BASIC SETTING

Rated speed rpm : 1250

Rack travel in mm: 11.35 Tolerance mm : +- 0.05

Del. quantity

cm3/1000 strokes : 76.0

Tolerance

cm3/1000 strokes : +- 1.0

Check tolerance

cm3/1000s. : +- 3.0

Spreed

Tolerance - 3.5 - Check tolerance - cm3/1000s. : 8.0	Check tolerance cm3/1000s. : 8.0
	CONTROL LEVER
Rated speed rpm : 325	control lever position degree : 107.0 tolerance degree : + 4.0
Rack travel in mm: 8.50 Tolerance mm: + 0.10 Del. quantity cm3/1000 strokes: 11.5 Tolerance cm3/1000 strokes: + 2.0	RATED SPEED rack travel mm : 10.35 Rated speed rpm : 1295 Tolerance 1/min : +- 5
Check tolerance - 4.5  Spreed - Tolerance - Check tolerance - Chec	rack travel mm : 4.00 Rated speed rpm : 1355 Tolerance 1/min : + 15
cm3/1000 strokes : 5.5 Check tolerance cm3/1000s. : 9.0	rack travel mms : 0.85 Tolerance mm : +- 0.55 Rated speed rpm : 1530
(B) SETTING OF INJECTION PUMP WITH GOVERNOR	rack travel mm : 4.00 Rated speed rpm : 1380 Tolerance 1/min : + 15
GUIDE SLEEVE POSITION	LOW IDLE
control lever position degree : FREE Rated speed rpm : 800  Rack travel in mm : 0.50	control lever position degree : 74.0 tolerance degree : + 4.0
Tolerance mm : + 0.20	Setting point w/out bumper spring Rated speed rpm : 325
governor spring pre-tension click setting x : 4.25	rack travel mm : 8.00 Tolerance mm : +- 0.10
FULL LOAD DELIVERY AT FULL LOAD STOP	Rated speed rpm : 100
Rated speed rpm : 1250	- CRT mm min. : > 19.50
Aneroid pressure	Testing:
Del. quantity - cm3/1000 strokes : 76.0 - Tolerance -	Rated speed rpm : 325 rack travel mm : 8.50 Tolerance mm : + 0.10
<pre>cm3/1000 strokes : + 1.0 Check tolerance cm3/1000s. : + 3.0 Spreed</pre>	- rack travel mm : 2.00 - Rated speed rpm : 510 - Tolerance 1/min : +- 30
Tolerance - cm3/1000 strokes : 3.5	<u>-</u>

TORQUE CONTROL

1250 Rated speed rpm : rack travel mm : 11.35 : ← 0.05 Tolerance mm

Rated speed rpm 500

# STARTING FUEL DELIVERY

Rated speed rpm 100 rack travel mm : 20.25 : **←** 0.75 Tolerance an

Del. quantity

cm3/1000 strokes : 130.0

Tolerance

cm3/1000 strokes : + 7.5

Check tolerance

cm3/1000s.: **←** 10.0

# LOW IDLE

Rated speed rpm : 325

Rack travel in mm: 8.50 Tolerance  $max : \leftarrow 0.10$ 

Del. quantity cm3/1000 strokes : 11.5

Tolerance

cm3/1000 strokes :  $\leftarrow$  2.0

Check tolerance

cm3/1000s.4.5

Spreed

Tolerance

cm3/1000 strokes : 5.5

Check tolerance

9.0 cm3/1000S.

## Note remarks

Refer to Service Info for test and adjustment instructions. See microcard(s) W400/...

Edition Test oil

: 18.06.97 : ISO 4113

Combination No. : 0 400 863 021

Injection pump

Pump designation : PES3A95D410/3RS2905

EP type number

: 0 410 893 996

Governor

Governer design. : RSV325...900A1C859L

Governer no.

: 0 420 232 622

Cust. part No.

: 0423 1593 KY

Customer-spec. information

: KHD-DMI Customer

: F3L912/913 NEU Motor

Power KW 40.5

## TEST BENCH REQUIREMENTS

: 3.1 Inlet line

Test oil inlet

temp. °C : +- 2.0 Tolerance °C

: 1 419 992 198 Overflow valve

Inlet press. bar : 1.5

Test nozzle holde

: 0 681 343 009 assembly

Opening pressure

: 173.5 bar

Tolerance bar

Test lines : 1 680 750 014

Outside diameter : 6.0

x inside diameter: 2.0 600 x length mm

REMARKS

(A) INJECTION PUMP SETTING VALUES

Set equal delivery quant.

per values \_\_\_\_\_

# BEGINNING OF DELIVERY

Test pressure bar : 26.0 Tolerance bar :  $\leftarrow$  1.0

Prestroke mm 3.00 : + 0.05Tolerance mm

Check

tolerance mm : + 0.10

Rack travel in mm : 10.50 Tolerance mm : **←** 1.50

Firing order : 1- 3- 2

: 0-120-240 Phasing Tolerance : **←** 0.50

Check

tolerance \*NW : + 0.75

BASIC SETTING

850 Rated speed rpm :

Rack travel in mm: 11.80 Tolerance mm : + 0.05

Del. quantity

cm3/1000 strokes : 80.0

Tolerance

cm3/1000 strokes : +-1.0

Check tolerance

cm3/1000s.: +-3.0

Spreed

Tolerance cm3/1000 strokes : 3.5	Check tolerance cm3/1000s. : 8.0
Check tolerance cm3/1000s. : 8.0	
	CONTROL LEVER
	control lever
Rated speed rpm : 325	position degree : 96.0 tolerance degree : + 4.0
Rack travel in mm: 7.90	+
Tolerance mm : + 0.10	RATED SPEED
Del. quantity	rack travel mm : 10.80
cm3/1000 strokes : 11.5	Rated speed rpm : 895
Tolerance	Tolerance 1/min : +- 5
cm3/1000 strokes : + 2.0	+
Check tolerance	rack travel mm : 4.00
cm3/1000s. : + 4.5	Rated speed rpm : 940
Spreed	Tolerance 1/min : + 10
Tolerance	1
cm3/1000 strokes : 5.5	rack travel mm : 0.85
Check tolerance	Tolerance mm : +- 0.55
cm3/1000s. : 9.0	Rated speed rpm : 1110
	rack travel mm : 4.00
(B) SETTING OF INJECTION PUMP	Rated speed rpm : 960
WITH GOVERNOR	Tolerance 1/min : +- 15
GUIDE SLEEVE POSITION	LOW IDLE
control lever	I
control lever	control lever
position degree : FREE	control lever
	position degree : 75.0
position degree : FREE Rated speed rpm : 800	
position degree : FREE	position degree : 75.0
position degree : FREE Rated speed rpm : 800  Rack travel in mm : 0.50 Tolerance mm : + 0.20	position degree : 75.0 tolerance degree : +- 4.0  Setting point w/out bumper spring
position degree : FREE Rated speed rpm : 800  Rack travel in mm : 0.50 Tolerance mm : + 0.20  governor spring	position degree : 75.0 tolerance degree : +- 4.0  Setting point w/out bumper spring  Rated speed rpm : 325
position degree : FREE Rated speed rpm : 800  Rack travel in mm : 0.50 Tolerance mm : + 0.20  governor spring pre-tension	position degree : 75.0 tolerance degree : + 4.0  Setting point w/out bumper spring  Rated speed rpm : 325 rack travel mm : 7.40
position degree : FREE Rated speed rpm : 800  Rack travel in mm : 0.50 Tolerance mm : + 0.20  governor spring	position degree : 75.0 tolerance degree : +- 4.0  Setting point w/out bumper spring  Rated speed rpm : 325 rack travel mm : 7.40
position degree : FREE Rated speed rpm : 800  Rack travel in mm : 0.50 Tolerance mm : + 0.20  governor spring pre-tension	position degree : 75.0 tolerance degree : + 4.0  Setting point w/out bumper spring  Rated speed rpm : 325 rack travel mm : 7.40 Tolerance mm : + 0.10
position degree : FREE Rated speed rpm : 800  Rack travel in mm : 0.50 Tolerance mm : + 0.20  governor spring pre-tension	position degree : 75.0 tolerance degree : + 4.0  Setting point w/out bumper spring  Rated speed rpm : 325 rack travel mm : 7.40 Tolerance mm : + 0.10
position degree : FREE Rated speed rpm : 800  Rack travel in mm : 0.50 Tolerance mm : + 0.20  governor spring pre-tension click setting x : 4.25	position degree : 75.0 tolerance degree : + 4.0  Setting point w/out bumper spring  Rated speed rpm : 325 rack travel mm : 7.40 Tolerance mm : + 0.10
position degree : FREE Rated speed rpm : 800  Rack travel in mm : 0.50 Tolerance mm : + 0.20  governor spring pre-tension click setting x : 4.25  FULL LOAD DELIVERY AT FULL LOAD STOP	position degree : 75.0 tolerance degree : + 4.0  Setting point w/out bumper spring  Rated speed rpm : 325 rack travel mm : 7.40 Tolerance mm : + 0.10  Rated speed rpm : 100
position degree : FREE Rated speed rpm : 800  Rack travel in mm : 0.50 Tolerance mm : + 0.20  governor spring pre-tension click setting x : 4.25  FULL LOAD DELIVERY AT FULL LOAD STOP  Rated speed rpm : 850	position degree : 75.0 tolerance degree : + 4.0  Setting point w/out bumper spring  Rated speed rpm : 325 rack travel mm : 7.40 Tolerance mm : + 0.10  Rated speed rpm : 100  CRT mm min. : > 19.50
position degree : FREE Rated speed rpm : 800  Rack travel in mm : 0.50 Tolerance mm : + 0.20  governor spring pre-tension click setting x : 4.25  FULL LOAD DELIVERY AT FULL LOAD STOP  Rated speed rpm : 850 Aneroid pressure	position degree : 75.0 tolerance degree : + 4.0  Setting point w/out bumper spring  Rated speed rpm : 325 rack travel mm : 7.40 Tolerance mm : + 0.10  Rated speed rpm : 100
position degree : FREE Rated speed rpm : 800  Rack travel in mm : 0.50 Tolerance mm : + 0.20  governor spring pre-tension click setting x : 4.25  FULL LOAD DELIVERY AT FULL LOAD STOP  Rated speed rpm : 850 Aneroid pressure hPa : -	position degree : 75.0 tolerance degree : + 4.0  Setting point w/out bumper spring  Rated speed rpm : 325 rack travel mm : 7.40 Tolerance mm : + 0.10  Rated speed rpm : 100  CRT mm min. : > 19.50  Testing:
position degree : FREE Rated speed rpm : 800  Rack travel in mm : 0.50 Tolerance mm : + 0.20  governor spring pre-tension click setting x : 4.25  FULL LOAD DELIVERY AT FULL LOAD STOP  Rated speed rpm : 850 Aneroid pressure hPa : - Del. quantity	position degree : 75.0 tolerance degree : + 4.0  Setting point w/out bumper spring  Rated speed rpm : 325 rack travel mm : 7.40 Tolerance mm : + 0.10  Rated speed rpm : 100  CRT mm min. : > 19.50  Testing:  Rated speed rpm : 325
position degree : FREE Rated speed rpm : 800  Rack travel in mm : 0.50 Tolerance mm : + 0.20  governor spring pre-tension click setting x : 4.25  FULL LOAD DELIVERY AT FULL LOAD STOP  Rated speed rpm : 850 Aneroid pressure hPa : - Del. quantity cm3/1000 strokes : 80.0	position degree : 75.0 tolerance degree : + 4.0  Setting point w/out bumper spring  Rated speed rpm : 325 rack travel mm : 7.40 Tolerance mm : + 0.10  Rated speed rpm : 100  CRT mm min. : > 19.50  Testing:  Rated speed rpm : 325 rack travel mm : 7.90
position degree : FREE Rated speed rpm : 800  Rack travel in mm : 0.50 Tolerance mm : + 0.20  governor spring pre-tension click setting x : 4.25  FULL LOAD DELIVERY AT FULL LOAD STOP  Rated speed rpm : 850 Aneroid pressure hPa : - Del. quantity cm3/1000 strokes : 80.0 Tolerance	position degree : 75.0 tolerance degree : + 4.0  Setting point w/out bumper spring  Rated speed rpm : 325 rack travel mm : 7.40 Tolerance mm : + 0.10  Rated speed rpm : 100  CRT mm min. : > 19.50  Testing:  Rated speed rpm : 325 rack travel mm : 7.90
position degree : FREE Rated speed rpm : 800  Rack travel in mm : 0.50 Tolerance mm : + 0.20  governor spring pre-tension click setting x : 4.25  FULL LOAD DELIVERY AT FULL LOAD STOP  Rated speed rpm : 850 Aneroid pressure hPa : - Del. quantity cm3/1000 strokes : 80.0 Tolerance cm3/1000 strokes : + 1.0	position degree : 75.0 tolerance degree : + 4.0  Setting point w/out bumper spring  Rated speed rpm : 325 rack travel mm : 7.40 Tolerance mm : + 0.10  Rated speed rpm : 100  CRT mm min. : > 19.50  Testing:  Rated speed rpm : 325 rack travel mm : 7.90 Tolerance mm : + 0.10
position degree : FREE Rated speed rpm : 800  Rack travel in mm : 0.50 Tolerance mm : + 0.20  governor spring pre-tension click setting x : 4.25  FULL LOAD DELIVERY AT FULL LOAD STOP  Rated speed rpm : 850 Aneroid pressure hPa : - Del. quantity cm3/1000 strokes : 80.0 Tolerance cm3/1000 strokes : + 1.0 Check tolerance	position degree : 75.0 tolerance degree : + 4.0  Setting point w/out bumper spring  Rated speed rpm : 325 rack travel mm : 7.40 Tolerance mm : + 0.10  Rated speed rpm : 100  CRT mm min. : > 19.50  Testing:  Rated speed rpm : 325 rack travel mm : 7.90 Tolerance mm : + 0.10  rack travel mm : 2.00
position degree : FREE Rated speed rpm : 800  Rack travel in mm : 0.50 Tolerance mm : + 0.20  governor spring pre-tension click setting x : 4.25  FULL LOAD DELIVERY AT FULL LOAD STOP  Rated speed rpm : 850 Aneroid pressure hPa : - Del. quantity cm3/1000 strokes : 80.0 Tolerance cm3/1000 strokes : + 1.0 Check tolerance cm3/1000s. : + 3.0	position degree : 75.0 tolerance degree : + 4.0  Setting point w/out bumper spring  Rated speed rpm : 325 rack travel mm : 7.40 Tolerance mm : + 0.10  Rated speed rpm : 100  CRT mm min. : > 19.50  Testing:  Rated speed rpm : 325 rack travel mm : 7.90 Tolerance mm : + 0.10  rack travel mm : 2.00 Rated speed rpm : 440
position degree : FREE Rated speed rpm : 800  Rack travel in mm : 0.50 Tolerance mm : + 0.20  governor spring pre-tension click setting x : 4.25  FULL LOAD DELIVERY AT FULL LOAD STOP  Rated speed rpm : 850 Aneroid pressure hPa : - Del. quantity cm3/1000 strokes : 80.0 Tolerance cm3/1000 strokes : + 1.0 Check tolerance cm3/1000s. : + 3.0 Spreed	position degree : 75.0 tolerance degree : + 4.0  Setting point w/out bumper spring  Rated speed rpm : 325 rack travel mm : 7.40 Tolerance mm : + 0.10  Rated speed rpm : 100  CRT mm min. : > 19.50  Testing:  Rated speed rpm : 325 rack travel mm : 7.90 Tolerance mm : + 0.10  rack travel mm : 2.00 Rated speed rpm : 440
position degree : FREE Rated speed rpm : 800  Rack travel in mm : 0.50 Tolerance mm : + 0.20  governor spring pre-tension click setting x : 4.25  FULL LOAD DELIVERY AT FULL LOAD STOP  Rated speed rpm : 850 Aneroid pressure hPa : - Del. quantity cm3/1000 strokes : 80.0 Tolerance cm3/1000 strokes : + 1.0 Check tolerance cm3/1000s. : + 3.0 Spreed Tolerance	position degree : 75.0 tolerance degree : + 4.0  Setting point w/out bumper spring  Rated speed rpm : 325 rack travel mm : 7.40 Tolerance mm : + 0.10  Rated speed rpm : 100  CRT mm min. : > 19.50  Testing:  Rated speed rpm : 325 rack travel mm : 7.90 Tolerance mm : + 0.10  rack travel mm : 2.00 Rated speed rpm : 440
position degree : FREE Rated speed rpm : 800  Rack travel in mm : 0.50 Tolerance mm : + 0.20  governor spring pre-tension click setting x : 4.25  FULL LOAD DELIVERY AT FULL LOAD STOP  Rated speed rpm : 850 Aneroid pressure hPa : - Del. quantity cm3/1000 strokes : 80.0 Tolerance cm3/1000 strokes : + 1.0 Check tolerance cm3/1000s. : + 3.0 Spreed	position degree : 75.0 tolerance degree : + 4.0  Setting point w/out bumper spring  Rated speed rpm : 325 rack travel mm : 7.40 Tolerance mm : + 0.10  Rated speed rpm : 100  CRT mm min. : > 19.50  Testing:  Rated speed rpm : 325 rack travel mm : 7.90 Tolerance mm : + 0.10  rack travel mm : 2.00 Rated speed rpm : 440

850 Rated speed rpm : 11.80 rack travel am : Tolerance mm : +- 0.05

Rated speed rpm 500

# STARTING FUEL DELIVERY

Rated speed rpm 100 20.25 rack travel mm : : + 0.75Tolerance mm

Del. quantity

cm3/1000 strokes : 130.0

Tolerance

cm3/1000 strokes :  $\leftarrow$  7.5

Check tolerance

cm3/1000s. : **←** 10.0

# LOW IDLE

Rated speed rpm : 325

Rack travel in mm : 7.90 Tolerance mm : +- 0.10

Del. quantity cm3/1000 strokes : 11.5

Tolerance

cm3/1000 strokes :  $\leftarrow$  2.0

Check tolerance

cm3/1000s.: +-4.5

Spreed

Tolerance

5.5 cm3/1000 strokes :

Check tolerance

9.0 cm3/1000s.

## Note remarks

Refer to Service Info for test and adjustment instructions. See microcard(s) W400/...

Edition : 01.08.97 : ISO 4113 Test oil

Combination No. : 0 400 863 024

Injection pump

Pump designation : PES3A95D410/3RS2905 EP type number : 0 410 893 996

Governor

6overner design. : RSV325...1250A5C917L

Governer no. : 0 420 232 639

Cust. part No. : 0423 2328 KY

Customer-spec. information : KHD-DMI Customer : F3L912 Motor : 44.0 Power KW

# TEST BENCH REQUIREMENTS

Inlet line : 3.1

Test oil inlet

40 temo. °C Tolerance °C : + 2.0

Overflow valve : 1 419 992 198

Inlet press. bar : 1.5

Test nozzle holde

: 0 681 343 009 assembly

Opening pressure

173.5 bar : **←** 1.5 Tolerance bar

Test Lines : 1 680 750 014

Outside diameter : 6.0 x inside diameter : 2.0 600 x length mm :

REMARKS

(A) INJECTION PUMP SETTING VALUES Set equal delivery quant.

per values \_\_\_\_

# BEGINNING OF DELIVERY

Test pressure bar : 26.0 Tolerance bar : + 1.0

Prestroke mm 3.00 : + 0.05Tolerance mm

Check

tolerance mm : + 0.10

Rack travel in mm : 10.50 : **←** 1.50 Tolerance mm

Firing order : 1- 3- 2

: 0-120-240 Phasing Tolerance : +- 0.50

Check

tolerance \*NW : **←** 0.75

# BASIC SETTING

Rated speed rpm : 1250

Rack travel in mm: 11.35 Tolerance mm : **←** 0.05

Del. quantity

cm3/1000 strokes : 76.0

Tolerance

cm3/1000 strokes : +-1.0

Check tolerance

cm3/1000s. : +-3.0

Spreed

Tolerance cm3/1000 strokes : 3.5 Check tolerance	Check tolerance cm3/1000s. : 8.0
cm3/1000s. : 8.0	CONTROL LEVER
Rated speed rpm : 325	control lever position degree : 107.0 tolerance degree : + 4.0
Rack travel in mm: 8.50  Tolerance mm: + 0.10  Del. quantity cm3/1000 strokes: 11.5  Tolerance cm3/1000 strokes: + 2.0	RATED SPEED rack travel mm : 10.35 Rated speed rpm : 1295 Tolerance 1/min : + 5
Check tolerance cm3/1000S. : + 4.5 Spreed Tolerance	rack travel mm : 4.00 Rated speed rpm : 1355 Tolerance 1/min : +- 15
cm3/1000 strokes : 5.5 - Check tolerance - cm3/1000s. : 9.9 -	rack travel mm : 0.85 Tolerance mm : + 0.55 Rated speed rpm : 1530
(B) SETTING OF INJECTION PUMP WITH GOVERNOR	rack travel mm : 4.00 Rated speed rpm : 1380 Tolerance 1/min : +- 15
GUIDE SLEEVE POSITION	LOW IDLE
•	
control lever position degree : FREE Rated speed rpm : 800	control lever position degree : 74.0 tolerance degree : +- 4.0
position degree : FREE -	control lever position degree : 74.0
position degree : FREE - Rated speed rpm : 800 - Rack travel in mm : 0.50 - Rack travel in mm : 0.50	control lever position degree : 74.0 tolerance degree : +- 4.0
position degree : FREE Rated speed rpm : 800  Rack travel in mm : 0.50 Tolerance mm : + 0.20  governor spring pre-tension	control lever position degree : 74.0 tolerance degree : + 4.0  Setting point w/out bumper spring  Rated speed rpm : 325 rack travel mm : 8.00 Tolerance mm : + 0.10  Rated speed rpm : 100
position degree : FREE Rated speed rpm : 800  Rack travel in mm : 0.50 Tolerance mm : + 0.20  governor spring pre-tension click setting x : 4.25  FULL LOAD DELIVERY AT FULL LOAD STOP  Rated speed rpm : 1250	control lever position degree : 74.0 tolerance degree : +- 4.0  Setting point w/out bumper spring  Rated speed rpm : 325 rack travel mm : 8.00 Tolerance mm : +- 0.10  Rated speed rpm : 100  CRT mm min. : > 19.50
position degree : FREE Rated speed rpm : 800  Rack travel in mm : 0.50 Tolerance mm : + 0.20  governor spring pre-tension click setting x : 4.25  FULL LOAD DELIVERY AT FULL LOAD STOP  Rated speed rpm : 1250 Aneroid pressure hPa : -	control lever position degree : 74.0 tolerance degree : + 4.0  Setting point w/out bumper spring  Rated speed rpm : 325 rack travel mm : 8.00 Tolerance mm : + 0.10  Rated speed rpm : 100  CRT mm min. : > 19.50  Testing:  Rated speed rpm : 325
position degree : FREE Rated speed rpm : 800  Rack travel in mm : 0.50 Tolerance mm : + 0.20  governor spring pre-tension click setting x : 4.25  FULL LOAD DELIVERY AT FULL LOAD STOP  Rated speed rpm : 1250 Aneroid pressure hPa : - Del. quantity cm3/1000 strokes : 76.0 Tolerance	control lever position degree : 74.0 tolerance degree : + 4.0  Setting point w/out bumper spring  Rated speed rpm : 325 rack travel mm : 8.00 Tolerance mm : + 0.10  Rated speed rpm : 100  CRT mm min. : > 19.50  Testing:
position degree : FREE Rated speed rpm : 800  Rack travel in mm : 0.50 Tolerance mm : + 0.20  governor spring pre-tension click setting x : 4.25  FULL LOAD DELIVERY AT FULL LOAD STOP  Rated speed rpm : 1250 Aneroid pressure hPa : - Del. quantity cm3/1000 strokes : 76.0	control lever position degree : 74.0 tolerance degree : + 4.0  Setting point w/out bumper spring  Rated speed rpm : 325 rack travel mm : 8.00 Tolerance mm : + 0.10  Rated speed rpm : 100  CRT mm min. : > 19.50  Testing:  Rated speed rpm : 325 rack travel mm : 325 rack travel mm : 8.50

Rated speed rpm : 1250 : 11.35 rack travel mm Tolerance mm : **←** 0.05

Rated speed rpm : 500

## STARTING FUEL DELIVERY

Rated speed rpm : 100 rack travel man : 17.00 : **←** 0.75 Tolerance mm Del. quantity

cm3/1000 strokes : 90.0

Tolerance

cm3/1000 strokes :  $\leftarrow$  7.5

Check tolerance

cm3/1000s. : + 10.0

## LOW IDLE

Rated speed rpm : 325

8.50 Rack travel in mm: Tolerance ma : +- 0.10

Del. quantity

cm3/1000 strokes : 11.5

Tolerance

2.0 cm3/1000 strokes : +-

Check tolerance

cm3/1000s. 4.5

Spreed

Tolerance

5.5 cm3/1000 strokes :

Check tolerance

cm3/1000s. 9.9

#### Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 18.06.97 Test oil : ISO 4113

Combination No. : 0 400 864 099

Injection pump

Pump designation : PES4A95D410/3RS2789 EP type number : 0 410 894 995

Governor

Governer design. : RSV325...1250A5C858L

Governer no. : 0 420 232 621

Cust. part No. : 0423 1595 KY

Customer—spec. information Customer : KHD-DMI

Motor : F4L912/913 NEU

Power KW : 54.0

## TEST BENCH REQUIREMENTS

Inlet line : 3.1

Test oil inlet

temp. °C : 40
Tolerance °C : + 2.0

Overflow valve : 1 419 992 198

Inlet press. bar : 1.5

Test nozzle holde

assembly : 0 681 343 009

Opening pressure

bar : 173.5 Tolerance bar : + 1.5

Test Lines : 1 680 750 014

Outside diameter : 6.0

x inside diameter: 2.0 x length mm : 600

## **REMARKS**

(A) INJECTION PUMP SETTING VALUES

Set equal delivery quant.

per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 26.0 Tolerance bar : +- 1.0

Prestroke mm : 3.00
Tolerance mm : + 0.05
Check

tolerance mm : + 0.10

Rack travel in mm : 10.50
Tolerance mm : + 1.50

Firing order : 1-3-4-2

Phasing : 0-90-180-270

Tolerance :  $\leftarrow$  0.50

Check

tolerance \*NW : + 0.75

## BASIC SETTING

Rated speed rpm : 1250

Rack travel in mm : 11.35
Tolerance mm : + 0.05

Del. quantity cm3/1000 strokes : 76.0

Tolerance

cm3/1000 strokes : +- 1.0

Check tolerance

cm3/1000s. :  $\leftarrow$  3.0

Spreed

Tolerance tolerance 3.5  Check tolerance	Check tolerance cm3/1000s. : 8.0
cm3/1000s. : 8.0	CONTROL LEVER
Rated speed rpm : 325	control lever position degree : 107.0 tolerance degree : +- 4.0
Rack travel in mm: 8.50 Tolerance mm: + 0.10 Del. quantity cm3/1000 strokes: 11.5 Tolerance cm3/1000 strokes: + 2.0	RATED SPEED rack travel mm : 10.35 Rated speed rpm : 1295 Tolerance 1/min : +- 5
Check tolerance cm3/1000S. : +- 4.5 Spreed Tolerance	rack travel mm : 4.00 Rated speed rpm : 1355 Tolerance 1/min : + 15
cm3/1000 strokes : 5.5 Check tolerance cm3/1000s. : 9.0	rack travel mm : 0.85 Tolerance mm : +- 0.55 Rated speed rpm : 1530
(B) SETTING OF INJECTION PUMP WITH GOVERNOR	rack travel mm : 4.00 Räted speed rpm : 1380 Tolerance 1/min : +- 15
GUIDE SLEEVE POSITION	LOW IDLE
control lever position degree : FREE Rated speed rpm : 800  Rack travel in mm : 0.50	control lever position degree : 74.0 tolerance degree : + 4.0
Tolerance mm : + 0.20	Setting point w/out bumper spring
governor spring pre-tension click setting x : 4.25	Rated speed rpm : 325 rack travel mm : 8.00 Tolerance mm : + 0.10
FULL LOAD DELIVERY AT FULL LOAD STOP	Rated speed rpm : 100
Rated speed rpm : 1250	CRT mm min. : > 19.50
Aneroid pressure + + + + + + + + + + + + + + + + + + +	Testing:
Del. quantity cm3/1000 strokes : 76.0 + Tolerance + cm3/1000 strokes : +- 1.0 +	Rated speed rpm : 325 rack travel mm : 8.50 Tolerance mm : + 0.10
Check tolerance cm3/1000s. : +- 3.0 +- Spreed	rack travel mm : 2.00 Rated speed rpm : 510 Tolerance 1/min : + 30
Tolerance + cm3/1000 strokes : 3.5 +	

Rated speed rpm : 1250 rack travel mm : 11.35 Tolerance mm : + 0.05

Rated speed rpm : 500

## STARTING FUEL DELIVERY

Rated speed rpm : 100 rack travel mm : 20.25 Tolerance mm : + 0.75

Del. quantity

cm3/1000 strokes : 130.0

Tolerance

cm3/1000 strokes :  $\leftarrow$  7.5

Check tolerance

cm3/1000s. :  $\leftarrow$  10.0

## LOW IDLE

Rated speed rpm : 325

Rack travel in mm : 8.50 Tolerance mm : + 0.10

Del. quantity

cm3/1000 strokes : 11.5

Tolerance

cm3/1000 strokes : +- 2.0

Check tolerance

cm3/1000s. : +- 4.5

Spreed Tolerance

cm3/1000 strokes : 5.5

Check tolerance

cm3/1000s. : 9.0

#### Note remarks

Refer to Service Info for test and adjustment instructions. See microcard(s) W400/...

Edition Test oil

: 10.03.97 : ISO 4113

Combination No. : 0 400 864 102

Injection pump

Pump designation: PES4A95D410/3RS2789

EP type number

: 0 410 894 995

Governor

Governer design. : RSV325...1250A5C861L

Governer no.

: 0 420 232 624

Cust. part No.

: 0423 1789 KY

Customer-spec. information

Customer

: KHD-DMI

Motor

: F4L912/913\_NEU

Power KW

: 59.0

## TEST BENCH REQUIREMENTS

Inlet line

: 3.1

Test oil inlet

temp. °C

Tolerance °C

: + 2.0

Overflow valve

: 1 419 992 198

Inlet press. bar : 1.5

Test nozzle holde

assembly

: 0 681 343 009

Opening pressure

173.5

Tolerance bar

Test lines

: 1 680 750 014

Outside diameter :

6.0

x inside diameter : 2.0 x length mm 600

REMARKS

(A) INJECTION PUMP SETTING VALUES

Set equal delivery quant.

per values \_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 26.0 Tolerance bar : +- 1.0

Prestroke mm 3.00

Tolerance mm

: + 0.05

Check

tolerance mm : + 0.10

Rack travel in mm: 10.50

Tolerance mm

: **←** 1.50

Firing order : 1-3-4-2

: 0-90-180-270 Phasing Tolerance : + 0.50

Check

tolerance \*NW

: + 0.75

## BASIC SETTING

Rated speed rpm : 1250

Rack travel in mm: 11.35

: +- 0.05 Tolerance mm

Del. quantity

cm3/1000 strokes :

76.0

Tolerance

cm3/1000 strokes : + 1.0

Check tolerance

cm3/1000s.

: +- 3.0

Spreed

Tolerance - 3.5 - Check tolerance -	Check tolerance cm3/1000s. : 8.0
cm3/1000s. : 8.0	CONTROL LEVER
-	<del>}</del>
Rated speed rpm : 325	- control lever - position degree : 102.0 - tolerance degree : +- 4.0
Rack travel in mm: 8.50	DATES OPERS
Tolerance mm : +- 0.10 - Del. quantity -	RATED SPEED : 10.35
cm3/1000 strokes : 11.5	Rated speed rpm : 1295
Tolerance -	Tolerance 1/min : + 5
cm3/1000 strokes : + 2.0	
Check tolerance - cm3/1000s. : + 4.5	rack travel mm : 4.00 Rated speed rpm : 1339
Spreed	Tolerance 1/min : + 15
Tolerance	t
cm3/1000 strokes : 5.5 - Check tolerance	rack travel mm : 0.85 Tolerance mm : + 0.55
cm3/1000s. : 9.0	Rated speed rpm : 1510
<del>i</del>	<del> </del>
(B) SETTING OF INJECTION PUMP WITH GOVERNOR	rack travel mm : 4.00 Rated speed rpm : 1360 Tolerance 1/min : +- 15
GUIDE SLEEVE POSITION	
GUIDE SLEEVE POSITION	LOW IDLE
control lever	
-	LOW IDLE  control lever  position degree : 69.0
control lever position degree : FREE Rated speed rpm : 800	control lever
control lever position degree : FREE	control lever position degree : 69.0
control lever position degree : FREE Rated speed rpm : 800  Rack travel in mm : 0.50 Tolerance mm : +- 0.20	control lever position degree : 69.0 tolerance degree : + 4.0
control lever position degree : FREE Rated speed rpm : 800  Rack travel in mm : 0.50 Tolerance mm : +- 0.20  governor spring pre-tension	control lever position degree : 69.0 tolerance degree : + 4.0  Setting point w/out bumper spring  Rated speed rpm : 325 rack travel mm : 8.00
control lever position degree : FREE Rated speed rpm : 800  Rack travel in mm : 0.50 Tolerance mm : +- 0.20  governor spring	control lever position degree : 69.0 tolerance degree : + 4.0  Setting point w/out bumper spring  Rated speed rpm : 325
control lever position degree : FREE Rated speed rpm : 800  Rack travel in mm : 0.50 Tolerance mm : +- 0.20  governor spring pre-tension	control lever position degree : 69.0 tolerance degree : + 4.0  Setting point w/out bumper spring Rated speed rpm : 325 rack travel mm : 8.00 Tolerance mm : + 0.10  Rated speed rpm : 100
control lever position degree : FREE Rated speed rpm : 800  Rack travel in mm : 0.50 Tolerance mm : + 0.20  governor spring pre-tension click setting x : 3.00  FULL LOAD DELIVERY AT FULL LOAD STOP	control lever position degree : 69.0 tolerance degree : + 4.0  Setting point w/out bumper spring  Rated speed rpm : 325 rack travel mm : 8.00 Tolerance mm : + 0.10
control lever position degree : FREE Rated speed rpm : 800  Rack travel in mm : 0.50 Tolerance mm : + 0.20  governor spring pre-tension click setting x : 3.00  FULL LOAD DELIVERY AT FULL LOAD STOP  Rated speed rpm : 1250 Aneroid pressure	control lever position degree : 69.0 tolerance degree : + 4.0  Setting point w/out bumper spring  Rated speed rpm : 325 rack travel mm : 8.00 Tolerance mm : + 0.10  Rated speed rpm : 100
control lever position degree : FREE Rated speed rpm : 800  Rack travel in mm : 0.50 Tolerance mm : + 0.20  governor spring pre-tension click setting x : 3.00  FULL LOAD DELIVERY AT FULL LOAD STOP  Rated speed rpm : 1250 Aneroid pressure hPa : -	control lever position degree : 69.0 tolerance degree : + 4.0  Setting point w/out bumper spring  Rated speed rpm : 325 rack travel mm : 8.00 Tolerance mm : + 0.10  Rated speed rpm : 100  CRT mm min. : > 19.50  Testing:
control lever position degree : FREE Rated speed rpm : 800  Rack travel in mm : 0.50 Tolerance mm : + 0.20  governor spring pre-tension click setting x : 3.00  FULL LOAD DELIVERY AT FULL LOAD STOP  Rated speed rpm : 1250 Aneroid pressure	control lever position degree : 69.0 tolerance degree : + 4.0  Setting point w/out bumper spring  Rated speed rpm : 325 rack travel mm : 8.00 Tolerance mm : + 0.10  Rated speed rpm : 100  CRT mm min. : > 19.50
control lever position degree : FREE Rated speed rpm : 800  Rack travel in mm : 0.50 Tolerance mm : + 0.20  governor spring pre-tension click setting x : 3.00  FULL LOAD DELIVERY AT FULL LOAD STOP  Rated speed rpm : 1250 Aneroid pressure hPa : - Del. quantity cm3/1000 strokes : 76.0 Tolerance	control lever position degree : 69.0 tolerance degree : + 4.0  Setting point w/out bumper spring  Rated speed rpm : 325 rack travel mm : 8.00 Tolerance mm : + 0.10  Rated speed rpm : 100  CRT mm min. : > 19.50  Testing:  Rated speed rpm : 325
control lever position degree : FREE Rated speed rpm : 800  Rack travel in mm : 0.50 Tolerance mm : + 0.20  governor spring pre-tension click setting x : 3.00  FULL LOAD DELIVERY AT FULL LOAD STOP  Rated speed rpm : 1250 Aneroid pressure hPa : - Del. quantity cm3/1000 strokes : 76.0 Tolerance cm3/1000 strokes : + 1.0	control lever position degree : 69.0 tolerance degree : + 4.0  Setting point w/out bumper spring  Rated speed rpm : 325 rack travel mm : 8.00 Tolerance mm : + 0.10  Rated speed rpm : 100  CRT mm min. : > 19.50  Testing:  Rated speed rpm : 325 rack travel mm : 8.50 Tolerance mm : + 0.10
control lever position degree : FREE Rated speed rpm : 800  Rack travel in mm : 0.50 Tolerance mm : + 0.20  governor spring pre-tension click setting x : 3.00  FULL LOAD DELIVERY AT FULL LOAD STOP  Rated speed rpm : 1250 Aneroid pressure hPa : - Del. quantity cm3/1000 strokes : 76.0 Tolerance cm3/1000 strokes : + 1.0 Check tolerance	control lever position degree : 69.0 tolerance degree : + 4.0  Setting point w/out bumper spring  Rated speed rpm : 325 rack travel mm : 8.00 Tolerance mm : + 0.10  Rated speed rpm : 100  CRT mm min. : > 19.50  Testing:  Rated speed rpm : 325 rack travel mm : 8.50 Tolerance mm : + 0.10  rack travel mm : 2.00
control lever position degree : FREE Rated speed rpm : 800  Rack travel in mm : 0.50 Tolerance mm : + 0.20  governor spring pre-tension click setting x : 3.00  FULL LOAD DELIVERY AT FULL LOAD STOP  Rated speed rpm : 1250 Aneroid pressure hPa : - Del. quantity cm3/1000 strokes : 76.0 Tolerance cm3/1000 strokes : + 1.0	control lever position degree : 69.0 tolerance degree : + 4.0  Setting point w/out bumper spring  Rated speed rpm : 325 rack travel mm : 8.00 Tolerance mm : + 0.10  Rated speed rpm : 100  CRT mm min. : > 19.50  Testing:  Rated speed rpm : 325 rack travel mm : 8.50 Tolerance mm : + 0.10
control lever position degree : FREE Rated speed rpm : 800  Rack travel in mm : 0.50 Tolerance mm : + 0.20  governor spring pre-tension click setting x : 3.00  FULL LOAD DELIVERY AT FULL LOAD STOP  Rated speed rpm : 1250 Aneroid pressure hPa : - Del. quantity cm3/1000 strokes : 76.0 Tolerance cm3/1000 strokes : + 1.0 Check tolerance cm3/1000s. : + 3.0	control lever position degree : 69.0 tolerance degree : + 4.0  Setting point w/out bumper spring  Rated speed rpm : 325 rack travel mm : 8.00 Tolerance mm : + 0.10  Rated speed rpm : 100  CRT mm min. : > 19.50  Testing:  Rated speed rpm : 325 rack travel mm : 8.50 Tolerance mm : + 0.10  rack travel mm : 2.00 Rated speed rpm : 2.00 Rated speed rpm : 473

Rated speed rpm : 1250 rack travel mm : 11.35 Tolerance mm : + 0.05

Rated speed rpm : 500

## STARTING FUEL DELIVERY

Rated speed rpm : 100 rack travel mm : 20.25 Tolerance mm : + 0.75

Del. quantity

cm3/1000 strokes : 130.0

Tolerance

cm3/1000 strokes :  $\leftarrow$  7.5

Check tolerance

cm3/1000s. :  $\leftarrow$  10.0

## LOW IDLE

Rated speed rpm : 325

Rack travel in mm : 8.50
Tolerance mm : + 0.10

Del. quantity

cm3/1000 strokes : 11.5

Tolerance

cm3/1000 strokes : + 2.0

Check tolerance

cm3/1000s. : + 4.5

Spreed

Tolerance

cm3/1000 strokes : 5.5

Check tolerance

cm3/1000s. : 9.0

#### Note remarks

Refer to Service Info for test and adjustment instructions. See microcard(s) W400/...

: 25.06.97 Edition : ISO 4113 Test oil

Combination No. : 0 400 866 222

Injection pump

Pump designation : PES6A95D410/3RS2907

EP type number : 0 410 896 884

Governor

Governer design. : RSV325...1250A5C950L

Governer no. : 0 420 232 641

Cust. part No. : 0423 1601 KY

Customer-spec. information : KHD-DMI Customer

: F6L912/913\_NEU Motor

Power KW : 81.0

## TEST BENCH REQUIREMENTS

Inlet line : 3.1

Test oil inlet

temp. °C Tolerance °C : + 2.0

Overflow valve : 1 419 992 198

Inlet press. bar : 1.5

Test nozzle holde

: 0 681 343 009 assembly

Opening pressure

: 173.5 bar Tolerance bar : +- 1.5

Test lines : 1 680 750 014

Outside diameter: 6.0

x inside diameter : 2.0 x length mm : 600

**REMARKS** 

(A) INJECTION PUMP SETTING VALUES

Set equal delivery quant.

per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 26.0 Tolerance bar : +- 1.0

Prestroke mm 3.00 : + 0.05Tolerance mm

Check

tolerance mm : +- 0.10

Rack travel in mm : 10.50 Tolerance mm : + 1.50

: 1-5-3-6-2-Firing order

Phasing : 0-60-120-180-240

: -300

Tolerance : **←** 0.50

Check

tolerance \*NW : + - 0.75

BASIC SETTING

Rated speed rpm : 1250

Rack travel in mm: 11.35

: +- 0.05 Tolerance mm

Del. quantity

cm3/1000 strokes : 76.0

Tolerance

cm3/1000 strokes : +-1.0

Check tolerance

cm3/1000s. : +-3.0

Spreed	Tolerance : 3.5
Tolerance	Check tolerance cm3/1000s. : 8.0
Check tolerance cm3/1000s. : 8.0	
	CONTROL LEVER
Rated speed rpm : 325	- control lever - position degree : 107.0 - tolerance degree : + 4.0
Rack travel in mm: 8.50 - Tolerance mm: + 0.10 -	- RATED SPEED
Del. quantity cm3/1000 strokes : 11.5	rack travel mm : 10.35 Rated speed rpm : 1295
Tolerance cm3/1000 strokes : + 2.0 check tolerance	- Tolerance 1/min : +- 5 - rack travel mm : 4.00
cm3/1000S. : + 4.5 Spreed	Rated speed rpm : 1355 Tolerance 1/min : + 15
Tolerance cm3/1000 strokes : 5.5 Check tolerance	- rack travel mm : 0.85 - Tolerance mm : +- 0.55
cm3/1000s. : 9.0	- Rated speed rpm : 1550
(B) SETTING OF INJECTION PUMP WITH GOVERNOR	rack travel mm : 4.00 Rated speed rpm : 1400 Tolerance 1/min : + 15
GUIDE SLEEVE POSITION	- LOW IDLE
control lever position degree : FREE Rated speed rpm : 800  Rack travel in mm : 0.50	control lever position degree : 73.0 tolerance degree : +- 4.0
Tolerance mm : + 0.20	<ul> <li>Setting point w/out bumper sprin</li> </ul>
governor spring pre-tension click setting x : 4.25	Rated speed rpm : 325 rack travel mm : 8.00 Tolerance mm : +- 0.10
FULL LOAD DELIVERY AT FULL LOAD STOP	Rated speed rpm : 100
Rated speed rpm : 1250	- CRT mm main. : > 19.50
Aneroid pressure + + + + + + + + + + + + + + + + + + +	Testing:
Del. quantity cm3/1000 strokes : 76.0 Tolerance	Rated speed rpm : 325 rack travel mm : 8.50 Tolerance mm : +- 0.10
<pre>cm3/1000 strokes : + 1.0 Check tolerance cm3/1000S. : + 3.0 Spreed</pre>	rack travel mm : 2.00 Rated speed rpm : 595 Tolerance 1/min : + 30
4	•

TORQUE CONTROL

Rated speed rpm : 1250 rack travel mm : 11.35 Tolerance mm : + 0.05

Rated speed rpm : 500

## STARTING FUEL DELIVERY

Rated speed rpm : 100 rack travel mm : 20.25 Tolerance mm : + 0.75 Del. quantity

Del. quantity cm3/1000 strokes : 130.0

Tolerance

cm3/1000 strokes : + 7.5

Check tolerance

cm3/1000s. :  $\leftarrow$  10.0

## LOW IDLE

Rated speed rpm : 325

Rack travel in mm: 8.50 Tolerance mm: + 0.10 Del. quantity

11.5

cm3/1000 strokes :

Tolerance

cm3/1000 strokes : +- 2.0

Check tolerance

cm3/1000s. : + 4.5

Spreed

Tolerance cm3/1000 strokes : 5.5

Check tolerance

cm3/1000s. : 9.0

## Note remarks

Refer to Service Info for test and adjustment instructions. See microcard(s) W400/...

Edition Test oil

: 19.01.98 : ISO 4113

Combination No. : 0 400 866 225

Injection pump

Pump designation : PES6A95D410/3RS2907

EP type number

: 0 410 896 884

Governor

Governer design. : RSV325...1250A5C967L

Governer no.

: 0 420 232 647

Cust. part No. : 0423 1813 KY

Customer-spec. information Customer : KHD-DMI

Motor : F6L912/913 NEU

Power KW : 89.0

## TEST BENCH REQUIREMENTS

Inlet line : 3.1

Test oil inlet

temp. °C : + 2.0 Tolerance \*C

Overflow valve : 1 419 992 198

Inlet press. bar : 1.5

Test nozzle holde

: 0 681 343 009 assembly

Opening pressure

173.5 bar : +- 1.5 Tolerance bar

Test lines : 1 680 750 014

Outside diameter : 6.0

x inside diameter: 2.0 x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES

Set equal delivery quant.

per values \_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar: : +-Tolerance bar

Prestroke mm 3.00 : + 0.05 Tolerance mm

Check

tolerance mm : + 0.10

Rack travel in mm: 10.50 Tolerance mm : +- 1.50

: 1-5-3-6-2-Firing order

: 0-60-120-180-240 Phasing

: -300

: + 0.50Tolerance

Check

tolerance \*NW : **←** 0.75

BASIC SETTING

Rated speed rpm : 1250

Rack travel in mm: 11.35 : +- 0.05 Tolerance mm

Del. quantity

cm3/1000 strokes : 76.0

Tolerance

cm3/1000 strokes :  $\leftarrow$  1.0

Check tolerance

cm3/1000s.

: **←** 3.0

Spreed		+ Tolerance + cm3/1000 strokes : 3.5
Tolerance		Check tolerance
cm3/1000 strokes	: 3.5	cm3/1000s. : 8.0
Check tolerance		<del>-</del> ‡
m3/1000s.	: 8.0	CONTROL LEVER
		t control lever
ated speed rpm	: 325	position degree : 102.0 tolerance degree : +- 4.0
lack travel in mo	a: 8.50	+
Tolerance mm		+ RATED SPEED
Del. quantity		rack travel mm : 10.35
cm3/1000 strokes	: 11.5	Rated speed rpm : 1295
	• 11•2	
Tolerance	- 4 - 2 - 4	† Tolerance 1/min : + 5
cm3/100C strokes	: + 2.0	†
Check tolerance		+ rack travel mm : 4.00
cm3/1000s.	: <del>←</del> 4.5	+ Rated speed rpm : 1340
Spreed		+ Tolerance 1/min : + 15
Tolerance		
cm3/1000 strokes	. 55	rack travel mm : 0.85
Check tolerance		+ Tolerance mm : + 0.55
cm3/1000s.	: 9.0	Rated speed rpm : 1540
		+
		rack travel mm : 4.00
(P) SETTING OF TH	WECTION PUMP	+ Rated speed rpm : 1385
	·	The reference of the contract
		Tolerance 1/min : + 15
WITH GOVERNOR	ITION	Tolerance 1/min : + 15
WITH GOVERNOR  GUIDE SLEEVE POSI	ITION	
WITH GOVERNOR  GUIDE SLEEVE POSI	ITION	Tolerance 1/min : + 15
WITH GOVERNOR GUIDE SLEEVE POSI		Tolerance 1/min : + 15  LOW IDLE
WITH GOVERNOR GUIDE SLEEVE POSI control lever position degree	: FREE	Tolerance 1/min : + 15  LOW IDLE  control lever
WITH GOVERNOR  GUIDE SLEEVE POSI	: FREE	Tolerance 1/min : + 15  LOW IDLE  control lever position degree : 68.0
WITH GOVERNOR  GUIDE SLEEVE POSI  control lever  position degree  Rated speed rpm	: FREE : 800	Tolerance 1/min : + 15  LOW IDLE  control lever
WITH GOVERNOR  GUIDE SLEEVE POSI  control lever  position degree  Rated speed rpm  Rack travel in mm	: FREE : 800 n: 0.50	Tolerance 1/min : + 15  LOW IDLE  control lever position degree : 68.0 tolerance degree : + 4.0
WITH GOVERNOR  GUIDE SLEEVE POSI  control lever  position degree  Rated speed rpm  Rack travel in mm	: FREE : 800 n: 0.50	Tolerance 1/min : + 15  LOW IDLE  control lever position degree : 68.0
GUIDE SLEEVE POSI control lever position degree Rated speed rpm Rack travel in mm	: FREE : 800 n: 0.50	Tolerance 1/min : + 15  LOW IDLE  control lever position degree : 68.0 tolerance degree : + 4.0  Setting point w/out bumper spring
WITH GOVERNOR  GUIDE SLEEVE POSI  control lever position degree Rated speed rpm  Rack travel in mm  Tolerance mm	: FREE : 800 n: 0.50	Tolerance 1/min : + 15  LOW IDLE  control lever position degree : 68.0 tolerance degree : + 4.0  Setting point w/out bumper spring  Rated speed rpm : 325
GUIDE SLEEVE POSI control lever position degree Rated speed rpm Rack travel in mm Tolerance mm governor spring pore-tension	: FREE : 800 n : 0.50 : ← 0.20	Tolerance 1/min : + 15  LOW IDLE  control lever position degree : 68.0 tolerance degree : + 4.0  Setting point w/out bumper spring  Rated speed rpm : 325
WITH GOVERNOR  GUIDE SLEEVE POSI  control lever position degree Rated speed rpm  Rack travel in mm  Tolerance mm  governor spring pre-tension	: FREE : 800 n : 0.50 : ← 0.20	Tolerance 1/min : + 15  LOW IDLE  control lever position degree : 68.0 tolerance degree : + 4.0  Setting point w/out bumper spring  Rated speed rpm : 325 rack travel mm : 8.00 Tolerance mm : + 0.10
WITH GOVERNOR  GUIDE SLEEVE POSI  control lever position degree Rated speed rpm  Rack travel in mm  Tolerance mm  governor spring pre-tension click setting x	: FREE : 800 : 0.50 : ← 0.20 : 3.00	Tolerance 1/min : + 15  LOW IDLE  control lever position degree : 68.0 tolerance degree : + 4.0  Setting point w/out bumper spring  Rated speed rpm : 325
GUIDE SLEEVE POSI control lever position degree Rated speed rpm Rack travel in mn Tolerance mm governor spring pre-tension click setting x	: FREE : 800 n : 0.50 : ← 0.20	Tolerance 1/min : + 15  LOW IDLE  control lever position degree : 68.0 tolerance degree : + 4.0  Setting point w/out bumper spring  Rated speed rpm : 325 rack travel mm : 8.00 Tolerance mm : + 0.10
GUIDE SLEEVE POSI control lever position degree Rated speed rpm Rack travel in mm Tolerance mm governor spring pre-tension click setting x	: FREE : 800 n: 0.50 : ← 0.20 : 3.00	Tolerance 1/min : + 15  LOW IDLE  control lever position degree : 68.0 tolerance degree : + 4.0  Setting point w/out bumper spring  Rated speed rpm : 325 rack travel mm : 8.00 Tolerance mm : + 0.10  Rated speed rpm : 100
GUIDE SLEEVE POSI control lever position degree Rated speed rpm Rack travel in mm Tolerance mm governor spring pre-tension click setting X	: FREE : 800 : 0.50 : + 0.20 : 3.00 RY AT FULL LOAD STOP : 1250	Tolerance 1/min : + 15  LOW IDLE  control lever position degree : 68.0 tolerance degree : + 4.0  Setting point w/out bumper spring  Rated speed rpm : 325 rack travel mm : 8.00 Tolerance mm : + 0.10  Rated speed rpm : 100  CRT mm min. : > 19.50
GUIDE SLEEVE POSI control lever position degree Rated speed rpm Rack travel in mm Tolerance mm governor spring pre-tension click setting x  FULL LOAD DELIVER Rated speed rpm Aneroid pressure	: FREE : 800 : 0.50 : + 0.20 : 3.00 RY AT FULL LOAD STOP : 1250	Tolerance 1/min : + 15  LOW IDLE  control lever position degree : 68.0 tolerance degree : + 4.0  Setting point w/out bumper spring  Rated speed rpm : 325 rack travel mm : 8.00 Tolerance mm : + 0.10  Rated speed rpm : 100
WITH GOVERNOR  GUIDE SLEEVE POSI  control lever position degree Rated speed rpm  Rack travel in mm  Tolerance mm  governor spring pre-tension click setting x  FULL LOAD DELIVER Rated speed rpm Aneroid pressure hPa	: FREE : 800 : 0.50 : + 0.20 : 3.00 RY AT FULL LOAD STOP : 1250	Tolerance 1/min : + 15  LOW IDLE  control lever position degree : 68.0 tolerance degree : + 4.0  Setting point w/out bumper spring  Rated speed rpm : 325 rack travel mm : 8.00 Tolerance mm : + 0.10  Rated speed rpm : 100  CRT mm min. : > 19.50  Testing:
WITH GOVERNOR  GUIDE SLEEVE POSI  control lever position degree Rated speed rpm  Rack travel in mm  Tolerance mm  governor spring pre-tension click setting x  FULL LOAD DELIVER Rated speed rpm Aneroid pressure hPa Del. quantity	: FREE : 800 : 0.50 : ← 0.20 : 3.00 : 3.00 RY AT FULL LOAD STOP : 1250 : –	Tolerance 1/min : + 15  LOW IDLE  control lever position degree : 68.0 tolerance degree : + 4.0  Setting point w/out bumper spring  Rated speed rpm : 325 rack travel mm : 8.00 Tolerance mm : + 0.10  Rated speed rpm : 100  CRT mm min. : > 19.50  Testing:  Rated speed rpm : 325
GUIDE SLEEVE POSI control lever position degree Rated speed rpm Rack travel in mm Tolerance mm governor spring pre-tension click setting x  FULL LOAD DELIVER Rated speed rpm Aneroid pressure hPa Del. quantity	: FREE : 800 : 0.50 : ← 0.20 : 3.00 : 3.00 RY AT FULL LOAD STOP : 1250 : –	Tolerance 1/min : + 15  LOW IDLE  control lever position degree : 68.0 tolerance degree : + 4.0  Setting point w/out bumper spring  Rated speed rpm : 325 rack travel mm : 8.00 Tolerance mm : + 0.10  Rated speed rpm : 100  CRT mm min. : > 19.50  Testing:  Rated speed rpm : 325
WITH GOVERNOR  GUIDE SLEEVE POSI  control lever position degree Rated speed rpm  Rack travel in mm  Toterance mm  governor spring pre-tension click setting x  FULL LOAD DELIVER  Rated speed rpm  Aneroid pressure hPa Del. quantity cm3/1000 strokes	: FREE : 800 : 0.50 : ← 0.20 : 3.00 : 3.00 RY AT FULL LOAD STOP : 1250 : –	Tolerance 1/min : + 15  LOW IDLE  control lever position degree : 68.0 tolerance degree : + 4.0  Setting point w/out bumper spring  Rated speed rpm : 325 rack travel mm : 8.00 Tolerance mm : + 0.10  Rated speed rpm : 100  CRT mm min. : > 19.50  Testing:  Rated speed rpm : 325 rack travel mm : 8.50
GUIDE SLEEVE POSI control lever position degree Rated speed rpm Rack travel in mm Tolerance mm governor spring pre-tension click setting x  FULL LOAD DELIVER Rated speed rpm Aneroid pressure hPa Del. quantity cm3/1000 strokes Tolerance	: FREE : 800 : 0.50 : ← 0.20 : 3.00 : 3.00 : 1250 : − : 76.0	Tolerance 1/min : + 15  LOW IDLE  control lever position degree : 68.0 tolerance degree : + 4.0  Setting point w/out bumper spring  Rated speed rpm : 325 rack travel mm : 8.00 Tolerance mm : + 0.10  Rated speed rpm : 100  CRT mm min. : > 19.50  Testing:  Rated speed rpm : 325
GUIDE SLEEVE POSI control lever position degree Rated speed rpm Rack travel in mm Tolerance mm governor spring pre-tension click setting x  FULL LOAD DELIVER Rated speed rpm Aneroid pressure hPa Del. quantity cm3/1000 strokes Tolerance cm3/1000 strokes	: FREE : 800 : 0.50 : ← 0.20 : 3.00 : 3.00 : 1250 : − : 76.0	Tolerance 1/min : + 15  LOW IDLE  control lever position degree : 68.0 tolerance degree : + 4.0  Setting point w/out bumper spring  Rated speed rpm : 325 rack travel mm : 8.00 Tolerance mm : + 0.10  Rated speed rpm : 100  CRT mm min. : > 19.50  Testing:  Rated speed rpm : 325 rack travel mm : 8.50 Tolerance mm : + 0.10
GUIDE SLEEVE POSI control lever position degree Rated speed rpm Rack travel in mm Tolerance mm governor spring pre-tension click setting x  FULL LOAD DELIVER Rated speed rpm Aneroid pressure hPa Del. quantity cm3/1000 strokes Tolerance cm3/1000 strokes Check tolerance	: FREE : 800 : 0.50 : ← 0.20 : 3.00 RY AT FULL LOAD STOP : 1250 : − : 76.0 : ← 1.0	Tolerance 1/min : + 15  LOW IDLE  control lever position degree : 68.0 tolerance degree : + 4.0  Setting point w/out bumper spring  Rated speed rpm : 325 rack travel mm : 8.00 Tolerance mm : + 0.10  Rated speed rpm : 100  CRT mm min. : > 19.50  Testing:  Rated speed rpm : 325 rack travel mm : 8.50 Tolerance mm : + 0.10  rack travel mm : 2.00
SUIDE SLEEVE POSI control lever cosition degree Rated speed rpm Rack travel in mm Tolerance mm governor spring ore-tension click setting x  FULL LOAD DELIVER Rated speed rpm Aneroid pressure hPa Del. quantity cm3/1000 strokes Tolerance cm3/1000 strokes	: FREE : 800 : 0.50 : ← 0.20 : 3.00 RY AT FULL LOAD STOP : 1250 : − : 76.0 : ← 1.0	Tolerance 1/min : + 15  LOW IDLE  control lever position degree : 68.0 tolerance degree : + 4.0  Setting point w/out bumper spring  Rated speed rpm : 325 rack travel mm : 8.00 Tolerance mm : + 0.10  Rated speed rpm : 100  CRT mm min. : > 19.50  Testing:  Rated speed rpm : 325 rack travel mm : 8.50 Tolerance mm : + 0.10

TORQUE CONTROL

1250 Rated speed rpm : 11.35 rack travel mm : Tolerance nm : + 0.05

Rated speed rpm 500

## STARTING FUEL DELIVERY

100 Rated speed rpm 20.25 rack travel mm : ← 0.75 Tolerance mm Del. quantity

cm3/1000 strokes : 130.0

Tolerance

cm3/1000 strokes :  $\leftarrow$  7.5

Check tolerance

: **←** 10.0 cm3/1000s.

## LOW IDLE

Rated speed rpm : 325

8,50 Rack travel in mm : : + 0.10 Tolerance mm

Del. quantity cm3/1000 strokes : 11.5

Tolerance

cm3/1000 strokes : +-2.0

Check tolerance

cm3/1000s. 4.5

Tolerance

Spreed

5.5 cm3/1000 strokes :

Check tolerance

9.0 cm3/1000s.

#### Note remarks

Refer to Service Info for test and adjustment instructions. See microcard(s) W400/...

Edition : 01.07.97 : ISO 4113 Test oil

Combination No. : 0 400 866 230

Injection pump

Pump designation : PES6A95D410/3RS2907 EP type number : 0 410 896 884

Governor

Governer design. : RSV325...1250A5C874L

Governer no. : 0 420 232 629

Cust. part No. : 0423 2054 KY

Customer-spec. information Customer : KHD-DMI : BF6L 913 Motor Power KW : 118.0

#### TEST BENCH REQUIREMENTS

Inlet line : 3.1

Test oil inlet

temp. °C ÷+ 2.0 Tolerance \*C

Overflow valve : 1 419 992 198

Inlet press. bar : 1.5

Test: nozzle holde

: 0 681 343 009 assembly

Opening pressure

: 173.5 bar Tolerance bar : +- 1.5

Test lines : 1 680 750 014

Outside diameter: 6.0

x inside diameter: 2.0 600 x length mm :

REMARKS

(A) INJECTION PUMP SETTING VALUES

Set equal delivery quant. per values \_\_\_\_\_

BEGINNING OF DELIVERY

Test pressure bar : 26.0 Tolerance bar : + 1.0

Prestroke mm Tolerance mm : + 0.05

Check

: + 0.10 tolerance mm

Rack travel in mm : 10.50 Tolerance mm : +- 1.50

Firing order : 1-5-3-6-2-

Phasing : 0-60-120-180-240

Tolerance : + 0.50

Check

tolerance "NW : **←** 0.75

BASIC SETTING

Rated speed rpm : 1250

Rack travel in mm: 13.20 Tolerance mm :  $\leftarrow$  0.05

Del. quantity

cm3/1000 strokes : 93.0

Tolerance

cm3/1000 strokes : +- 1.0

Check tolerance cm3/1000s.

; +-3.0

Spreed	+ Tolerance
Talamanaa	+ cm3/1000 strokes : 3.5
Tolerance cm3/1000 strokes : 3.5	+ Check tolerance + cm3/1000s. : 8.0
CIRD/ TODO SETORES . 3.3	T CH3/10003 0.0
Check tolerance	+
cm3/1000s. : 8.0	
	+ CONTROL LEVER
	control lever
Rated speed rpm : 325	position degree : 104.0
	+ tolerance degree : + 4.0
Rack travel in mm: 8.20	+
Tolerance mm : + 0.10	RATED SPEED
Del. quantity cm3/1000 strokes : 11.5	+ rack travel mm : 12.20 + Rated speed rpm : 1295
Tolerance	Tolerance 1/min : + 5
cm2/1000 strokes : +- 2.0	
Check tolerance	+ rack travel mm : 4.00
c元型 1000s. : +- 4.5	Rated speed rpm : 1355
Spreed Tolerance	† Tole#≈nce 1/min : + 15
cm3/1000 strokes : 5.5	rack trave: TWN : 0.85
Check tolerance	+ Tolerance mm : +- C.55
cm3/1000s. : 9.0	+ Rated speed rpm : 1550
	t modultanial many / 00
(B) SETTING OF INJECTION PUMP	+ rack travel mm : 4.00 + Rated speed rpm : 1400
WITH GOVERNOR	Tolerance 1/min : + 15
	+
	1
	Ţ
CLIDE SLEEVE POSITION	<u> </u>
GUIDE SLEEVE POSITION	LOW IDLE
GUIDE SLEEVE POSITION	LOW IDLE
control lever	+
control lever position degree : FREE	control lever
control lever	control lever position degree : 70.0
control lever position degree : FREE Rated speed rpm : 800	control lever
control lever position degree : FREE	control lever position degree : 70.0
control lever position degree : FREE Rated speed rpm : 800  Rack travel in mm : 0.50 Tolerance mm : + 0.20	control lever position degree : 70.0 tolerance degree : +- 4.0  Setting point w/out bumper spring
control lever position degree : FREE Rated speed rpm : 800  Rack travel in mm : 0.50 Tolerance mm : + 0.20  governor spring	control lever position degree : 70.0 tolerance degree : + 4.0  Setting point w/out bumper spring  Rated speed rpm : 325
control lever position degree : FREE Rated speed rpm : 800  Rack travel in mm : 0.50 Tolerance mm : + 0.20  governor spring pre-tension	control lever position degree : 70.0 tolerance degree : + 4.0  Setting point w/out bumper spring  Rated speed rpm : 325 rack travel mm : 7.70
control lever position degree : FREE Rated speed rpm : 800  Rack travel in mm : 0.50 Tolerance mm : + 0.20  governor spring	control lever position degree : 70.0 tolerance degree : + 4.0  Setting point w/out bumper spring  Rated speed rpm : 325
control lever position degree : FREE Rated speed rpm : 800  Rack travel in mm : 0.50 Tolerance mm : + 0.20  governor spring pre-tension	control lever position degree : 70.0 tolerance degree : + 4.0  Setting point w/out bumper spring  Rated speed rpm : 325 rack travel mm : 7.70
control lever position degree : FREE Rated speed rpm : 800  Rack travel in mm : 0.50 Tolerance mm : + 0.20  governor spring pre-tension	control lever position degree : 70.0 tolerance degree : + 4.0  Setting point w/out bumper spring  Rated speed rpm : 325 rack travel mm : 7.70 Tolerance mm : +- 0.10  Testing:
control lever position degree : FREE Rated speed rpm : 800  Rack travel in mm : 0.50 Tolerance mm : + 0.20  governor spring pre-tension click setting x : 3.50  FULL LOAD DELIVERY AT FULL LOAD STOP	control lever position degree : 70.0 tolerance degree : + 4.0  Setting point w/out bumper spring  Rated speed rpm : 325 rack travel mm : 7.70 Tolerance mm : + 0.10  Testing:  Rated speed rpm : 325
control lever position degree : FREE Rated speed rpm : 800  Rack travel in mm : 0.50 Tolerance mm : + 0.20  governor spring pre-tension click setting x : 3.50  FULL LOAD DELIVERY AT FULL LOAD STOP  Rated speed rpm : 1250	control lever position degree : 70.0 tolerance degree : + 4.0  Setting point w/out bumper spring  Rated speed rpm : 325 rack travel mm : 7.70 Tolerance mm : + 0.10  Testing:  Rated speed rpm : 325 rack travel mm : 325 Rated speed rpm : 325 rack travel mm : 325
control lever position degree : FREE Rated speed rpm : 800  Rack travel in mm : 0.50 Tolerance mm : + 0.20  governor spring pre-tension click setting x : 3.50  FULL LOAD DELIVERY AT FULL LOAD STOP	control lever position degree : 70.0 tolerance degree : + 4.0  Setting point w/out bumper spring  Rated speed rpm : 325 rack travel mm : 7.70 Tolerance mm : + 0.10  Testing:  Rated speed rpm : 325
control lever position degree : FREE Rated speed rpm : 800  Rack travel in mm : 0.50 Tolerance mm : + 0.20  governor spring pre-tension click setting x : 3.50  FULL LOAD DELIVERY AT FULL LOAD STOP  Rated speed rpm : 1250 Aneroid pressure hPa : - Del. quantity	control lever position degree : 70.0 tolerance degree : + 4.0  Setting point w/out bumper spring  Rated speed rpm : 325 rack travel mm : 7.70 Tolerance mm : + 0.10  Testing:  Rated speed rpm : 325 rack travel mm : 8.20 Tolerance mm : + 0.10  rack travel mm : 2.00
control lever position degree : FREE Rated speed rpm : 800  Rack travel in mm : 0.50 Tolerance mm : + 0.20  governor spring pre-tension click setting x : 3.50  FULL LOAD DELIVERY AT FULL LOAD STOP  Rated speed rpm : 1250 Aneroid pressure hPa : - Del. quantity cm3/1000 strokes : 93.0	control lever position degree : 70.0 tolerance degree : + 4.0  Setting point w/out bumper spring  Rated speed rpm : 325 rack travel mm : 7.70 Tolerance mm : + 0.10  Testing:  Rated speed rpm : 325 rack travel mm : 8.20 Tolerance mm : + 0.10  rack travel mm : 2.00 Rated speed rpm : 560
control lever position degree : FREE Rated speed rpm : 800  Rack travel in mm : 0.50 Tolerance mm : + 0.20  governor spring pre-tension click setting x : 3.50  FULL LOAD DELIVERY AT FULL LOAD STOP  Rated speed rpm : 1250 Aneroid pressure hPa : - Del. quantity cm3/1000 strokes : 93.0 Tolerance	control lever position degree : 70.0 tolerance degree : + 4.0  Setting point w/out bumper spring  Rated speed rpm : 325 rack travel mm : 7.70 Tolerance mm : + 0.10  Testing:  Rated speed rpm : 325 rack travel mm : 8.20 Tolerance mm : + 0.10  rack travel mm : 2.00
control lever position degree : FREE Rated speed rpm : 800  Rack travel in mm : 0.50 Tolerance mm : + 0.20  governor spring pre-tension click setting x : 3.50  FULL LOAD DELIVERY AT FULL LOAD STOP  Rated speed rpm : 1250 Aneroid pressure hPa : - Del. quantity cm3/1000 strokes : 93.0 Tolerance cm3/1000 strokes : + 1.0	control lever position degree : 70.0 tolerance degree : + 4.0  Setting point w/out bumper spring  Rated speed rpm : 325 rack travel mm : 7.70 Tolerance mm : + 0.10  Testing:  Rated speed rpm : 325 rack travel mm : 8.20 Tolerance mm : + 0.10  rack travel mm : 2.00 Rated speed rpm : 560
control lever position degree : FREE Rated speed rpm : 800  Rack travel in mm : 0.50 Tolerance mm : + 0.20  governor spring pre-tension click setting x : 3.50  FULL LOAD DELIVERY AT FULL LOAD STOP  Rated speed rpm : 1250 Aneroid pressure hPa : - Del. quantity cm3/1000 strokes : 93.0 Tolerance cm3/1000 strokes : + 1.0 Check tolerance	control lever position degree : 70.0 tolerance degree : + 4.0  Setting point w/out bumper spring  Rated speed rpm : 325 rack travel mm : 7.70 Tolerance mm : + 0.10  Testing:  Rated speed rpm : 325 rack travel mm : 8.20 Tolerance mm : + 0.10  rack travel mm : 2.00 Rated speed rpm : 560
control lever position degree : FREE Rated speed rpm : 800  Rack travel in mm : 0.50 Tolerance mm : + 0.20  governor spring pre-tension click setting x : 3.50  FULL LOAD DELIVERY AT FULL LOAD STOP  Rated speed rpm : 1250 Aneroid pressure hPa : - Del. quantity cm3/1000 strokes : 93.0 Tolerance cm3/1000 strokes : + 1.0 Check tolerance	control lever position degree : 70.0 tolerance degree : + 4.0  Setting point w/out bumper spring  Rated speed rpm : 325 rack travel mm : 7.70 Tolerance mm : + 0.10  Testing:  Rated speed rpm : 325 rack travel mm : 8.20 Tolerance mm : + 0.10  rack travel mm : 2.00 Rated speed rpm : 560 Tolerance 1/min : + 30

: **←** 0.05 Tolerance mm

Rated speed rpm : 500 rack travel mm 13.25 Tolerance mm : +- 0.10

## FUEL DELIVERY CHARACTERISTICS

Aneroid pressure

hPa 500 Rated speed rpm

Tolerance

cm3/1000 strokes : +-

Check tolerance

cm3/1000s. 4.0

## STARTING FUEL DELIVERY

Rated speed rpm 100 20.50 rack travel mm : : + 1.00 Tolerance ma

Del. quantity cm3/1000 strokes : 124.0

Tolerance cm3/1000 strokes : + 7.5

Check tolerance cm3/1000s. : + 10.0

## LOW IDLE

Rated speed rpm : 325

8.20 Rack travel in mm : : **→** 0.10 Tolerance mm

Del. quantity

cm3/1000 strokes : 11.5

Tolerance

cm3/1000 strokes : +-2.0

Check tolerance cm3/1000s. 4.5

Spreed Tolerance

cm3/1000 strokes : 5.5

Check tolerance 9.0 cm3/1000s.

#### Note remarks

Refer to Service Info for test and adjustment instructions. See microcard(s) W400/...

Edition : 15.01.98 Test oil : ISO 4113

Combination No. : F 002 A0Z 033

Injection pump

Pump designation : PES6A95D320/3RS2881

EP type number : 9 410 037 215

Governor

Governer design. : RSV475...1050A0c911R

Governer no. : F 002 A20 223

Cust. part No. : 3283692

Customer—spec. information Customer : CUMMINS

Motor : 687-755 PS/2100

## TEST BENCH REQUIREMENTS

Inlet line : 3.2

Test oil inlet

temp. \*C : 40
Tolerance \*C : + 2.0

Overflow valve : 2 417 413 093

Inlet press. bar : 2.0 Tolerance bar : +- 0.1

Test nozzle holde

assembly : 1 688 901 101

Opening pressure

bar : 208.5 Tolerance bar : + 1.5

Test lines : 1 680 750 014

Outside diameter : 6.0

x inside diameter: 2.0 x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES

Set equal delivery quant.

per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 17.0 Tolerance bar : + 1.0

Prestroke mm : 2.85
Tolerance mm : + 0.05

Check

tolerance mm : + 0.10

Rack travel in mm : 10.50
Tolerance mm : + 1.50

Firing order : 1-5-3-6-2-

: 4

Phasing : 0-60-120-180-240

: -300

Tolerance :  $\leftarrow$  0.50

Check

tolerance  $^{\circ}NW$  :  $\leftarrow$  0.75

Start of delivery blocking

\*NW after s.o.d. : 7.00 Tolerance : + 0.10

Check

tolerance \*NW : + 0.29

Barrel no. : 1

#### BASIC SETTING

Rated speed rpm : 1050

Rack travel in mm: 13.20

Tolerance mm	: <b>←</b> 0.05 +	Del. quantity
	<del></del>	cm3/1000 strokes : 110.0
Del. quantity	+	Tolerance
cm3/1000 strokes	: 110.0	cm3/1000 strokes : +- 1.0
	1	Check tolerance
Tolerance	+	cm3/1000s. : +- 3.0
cm3/1000 strokes	: + 1.0	Spreed
	1	Tolerance
Check tolerance		cm3/1000 strokes : 4.0
cm3/1000s.	: + 3.0	Check tolerance
(43) 10003.	I	cm3/1000s. ; 6.5
Spreed		CHO/ (COC)
opreed	T	
Tolonopoo	T	
Tolerance	1	CONTROL LEVED
cm3/1000 strokes	: 4.0	CONTROL LEVER
<b>51</b> 1 . 1		
Check tolerance	†	control lever
om3/1000S.	: 6.5	position degree : 105.0
	+	tolerance degree : +- 4.0
	+	
	+	RATED SPEED
Rated speed rpm	: 475	rack travel mm : 12.20
A Section 1	1	Rated speed rpm : 1095
Rack travel in mm	: 5.80	Tolerance 1/min : +- 5
Tolerance mm	: + 0.10	
Del. quantity	1	rack travel mm : 4.00
cm3/1000 strokes	: 20.8	Rated speed rpm : 1185
	· 20.0	Tolerance 1/min : +- 5
Tolerance	T	Toterance Thirm: = 5
cm3/1000 strokes	: + 2.0	0.05
Check tolerance	<del>.</del>	rack travel mm : 0.85
cm3/1000s.	: +- 4.5 +	Tolerance mm : + 0.55
Spreed	+	Rated speed rpm : 1300
Tolerance	+	
cm3/1000 strokes	: 6.0 +	rack travel mm : 4.00
Check tolerance	+	Tolerance mm : + 0.05
cm3/1000s.	: 8.0	Rated speed rpm : 1185
	1	Tolerance 1/min : + 15
	1	
(B) SETTING OF IN	JECTION PIMP	
WITH GOVERNOR	1	
ATTI GOVERNOR	1	
	I	LOW IDLE
		FOM TAFF
CUTNE SI FEVE POST	TTON	
GUIDE SLEEVE POSIT	1104	control lever
Datad massl		
Rated speed rpm	: 000 †	position degree : 83.0
	†	tolerance degree : + 4.0
Rack travel in mm		
Tolerance mm	: <b>←</b> 0.20 +	Setting point w/out bumper spring
	+	
governor spring	+	Rated speed rpm : 475
pre-tension	+	rack travel mm : 5.30
click setting x	: 4.00	Tolerance mm : $+$ 0.10
	1	
		Rated speed rpm : 100
FILL LOAD DELIVEDY	Y AT FULL LOAD STOP	
- ALE TAUR RECTAEL	1 1022 20/10	CRT mm min. : > 19.00
Rated speed rpm	: 1050	VIII IIII IIII 6 7 17400
	· 1050	Testing:
Aneroid pressure	. 1200	reachig.
hPa	: 1200 +	

Rated speed rpm	: 475
rack travel mm Tolerance mm	: 5.80 : +- 0.10
rack travel mm	: 2.00 : 550
Rated speed rpm Tolerance 1/min	: 550 : ← 30
Total and Thair	
TORQUE CONTROL	
Rated speed rpm	: 1050
rack travel mm	
Tolerance mm	: +- 0.05
Rated speed rpm	: 750
AMEROID/ALTITUDE COMPENSATOR TEST	
SETTING	
Rated speed rpm	: 500
Pressure hPa	: 1200
Rated speed rpm	: 500
Pressure hPa	: -
rack travel mm	: 11.10
Tolerance mm	: +- 0.20
MEASUREMENT	
Rated speed rpm	: 500
Pressure hPa	: 700
rack travel mm	: 12.40
Tolerance mm	: + 0.20
Pressure hPa	: 550
rack travel mm	: 11.75
Tolerance mm	: +- 0.20
	·····
FUEL DELIVERY CHA	RACTERISTICS
Aneroid pressure	
hPa	: 1200
Rated speed rpm Del. quantity	: 750
cm3/1000 strokes	: 116.0
Tolerance	
cm3/1000 strokes	: <b>←</b> 2.0
Check tolerance cm3/1000s.	: +- 4.0
J	

Aneroid pressure hPa Rated speed rpm Del. quantity cm3/1000 strokes Tolerance cm3/1000 strokes Check tolerance cm3/1000s.	: +-	500 87.0 1.0 3.0	
STARTING FUEL DEL	IVERY		
Rated speed rpm rack travel mm Tolerance mm Del. quantity cm3/1000 strokes Tolerance cm3/1000 strokes Check tolerance cm3/1000s.	: +	100 20.25 0.75 121.5 10.0	
LOW IDLE			
Rated speed rpm	•	475	
Rack travel in mm Tolerance mm Del. quantity cm3/1000 strokes Tolerance cm3/1000 strokes Check tolerance cm3/1000s. Spreed Tolerance cm3/1000 strokes Check tolerance cm3/1000 strokes Check tolerance cm3/1000s.	: +- : +- : :	5.80 0.10 20.8 2.0 4.5 6.0 8.0	

#### Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 28.01.98 Test oil : ISO 4113

Combination No. : 0 400 656 152

Injection pump

Pump designation : PE6A90D412RS2507 EP type number : 0 410 696 178

Governor

Governer design. : RQV300...1400AB970DL

60verner no. : 0 420 214 222

Cust. part No. :

Customer—spec. information Customer : SNF Motor : WD61039 Power KW : 97.0

#### TEST BENCH REQUIREMENTS

Inlet line : 3.1

Test oil inlet

temp. °C : 40
Tolerance °C : ← 2.0

Overflow valve : 1 419 992 198

Inlet press. bar : 1.5

Test nozzle holde

assembly : 0 681 343 009

Opening pressure

bar : 173.5 Tolerance bar : + 1.5

Test lines : 1 680 750 014

Outside diameter : 6.0

x inside diameter: 2.0 x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES

Set equal delivery quant.

per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 26.0 Tolerance bar : + 1.0

Prestroke mm : 2.20
Tolerance mm : + 0.05

Check

tolerance mm : + 0.10

Rack travel in mm : 10.50 Tolerance mm : + 1.50

Firing order : 1-5-3-6-2-

: 4

Phasing : 0-60-120-180-240

: -300

Tolerance : ← 0.50

Check

tolerance \*NW : + 0.75

BASIC SETTING

Rated speed rpm : 1400

Rack travel in mm : 8.55
Tolerance mm : + 0.05

Del. quantity

cm3/1000 strokes : 56.0

Tolerance

cm3/1000 strokes :  $\leftarrow$  0.5

Check tolerance

cm3/1000s. : + 2.5

Spreed

Tolerance +	
cm3/1000 strokes : 3.0	
	CONTROL LEVER
Check tolerance	
cm3/1000s. : 5.0 +	control lever
	position degree : 106.0
†	tolerance degree : +- 4.0
Rated speed rom : 300	RATED SPEED
Rated speed rpm : 300	rack travel mm : 7.50
Rack travel in mm : 6.00	Rated speed rpm : 1445
Tolerance am : + 0.10	Tolerance 1/min : +- 5
Del. quantity	Toterance Triagn . The 3
cm3/1000 strokes : 11.0	rack travel mm : 4.00
Tolerance	Rated speed rpm : 1495
cm3/1000 strokes : + 3.0 +	Tolerance 1/min : + 15
Check tolerance	TO COT GILLOC TAMENT
cm3/1000s. : + 5.0	rack travel mm : 0.50
Spreed	Tolerance mm : + 0.50
Tolerance	Rated speed rpm : 1600
cm3/1000 strokes : 2.5	
Check tolerance	
cm3/1000s. : 4.5	
+	
<b>†</b>	LOW IDLE
(B) SETTING OF INJECTION PUMP	
WITH GOVERNOR	and the
†	control lever
†	position degree : 77.0
	tolerance degree : +- 4.0
CUTAE OF FEVE PACITION	
GUIDE SLEEVE POSITION	Satting point would be more coping
GUIDE SLEEVE POSITION	Setting point w/out bumper spring
‡	
control lever	Setting point w/out bumper spring Rated speed rpm : 200
control lever	
control lever position degree : -1 Rated speed rpm : 1565	Rated speed rpm : 200  CRT mm min. :> 8.00
control lever position degree : -1 Rated speed rpm : 1565  Rack travel in mm : 7.50	Rated speed rpm : 200
control lever position degree : -1 Rated speed rpm : 1565	Rated speed rpm : 200  CRT mm min. :> 8.00  Testing:
control lever position degree : -1 Rated speed rpm : 1565  Rack travel in mm : 7.50	Rated speed rpm : 200  CRT mm min. :> 8.00  Testing:  Rated speed rpm : 300
control lever position degree : -1 Rated speed rpm : 1565  Rack travel in mm : 7.50 Tolerance mm : + 1.30	Rated speed rpm : 200  CRT mm min. :> 8.00  Testing:  Rated speed rpm : 300 rack travel mm : 6.00
control lever position degree : -1 Rated speed rpm : 1565  Rack travel in mm : 7.50	Rated speed rpm : 200  CRT mm min. :> 8.00  Testing:  Rated speed rpm : 300
control lever position degree : - 1 Rated speed rpm : 1565  Rack travel in mma : 7.50 Tolerance mma : + 1.30  FULL LOAD DELIVERY AT FULL LOAD STOP	Rated speed rpm : 200  CRT mm min. : > 8.00  Testing:  Rated speed rpm : 300 rack travel mm : 6.00 Tolerance mm : + 0.10
control lever position degree : -1 Rated speed rpm : 1565  Rack travel in mm : 7.50 Tolerance mm : + 1.30  FULL LOAD DELIVERY AT FULL LOAD STOP  Rated speed rpm : 1400	Rated speed rpm : 200  CRT mm min. :> 8.00  Testing:  Rated speed rpm : 300 rack travel mm : 6.00
control lever position degree : -1 Rated speed rpm : 1565  Rack travel in mm : 7.50 Tolerance mm : + 1.30  FULL LOAD DELIVERY AT FULL LOAD STOP  Rated speed rpm : 1400 Aneroid pressure	Rated speed rpm : 200  CRT mm min. : > 8.00  Testing:  Rated speed rpm : 300 rack travel mm : 6.00 Tolerance mm : + 0.10
control lever position degree : -1 Rated speed rpm : 1565  Rack travel in mm : 7.50 Tolerance mm : + 1.30  FULL LOAD DELIVERY AT FULL LOAD STOP  Rated speed rpm : 1400 Aneroid pressure hPa : -	Rated speed rpm : 200  CRT mm min. :> 8.00  Testing:  Rated speed rpm : 300 rack travel mm : 6.00 Tolerance mm : + 0.10  Rated speed rpm : 400
control lever position degree : -1 Rated speed rpm : 1565  Rack travel in mm : 7.50 Tolerance mm : + 1.30  FULL LOAD DELIVERY AT FULL LOAD STOP  Rated speed rpm : 1400 Aneroid pressure hPa : - Del. quantity	Rated speed rpm : 200  CRT mm min. :> 8.00  Testing:  Rated speed rpm : 300 rack travel mm : 6.00 Tolerance mm : + 0.10  Rated speed rpm : 400  TORQUE CONTROL
control lever position degree : -1 Rated speed rpm : 1565  Rack travel in mm : 7.50 Tolerance mm : + 1.30  FULL LOAD DELIVERY AT FULL LOAD STOP  Rated speed rpm : 1400 Aneroid pressure hPa : -	Rated speed rpm : 200  CRT mm min. :> 8.00  Testing:  Rated speed rpm : 300 rack travel mm : 6.00 Tolerance mm : + 0.10  Rated speed rpm : 400  TORQUE CONTROL Rated speed rpm : 1400 rack travel mm : 8.55
control lever position degree : -1 Rated speed rpm : 1565  Rack travel in mm : 7.50 Tolerance mm : + 1.30  FULL LOAD DELIVERY AT FULL LOAD STOP  Rated speed rpm : 1400 Aneroid pressure hPa : - Del. quantity cm3/1000 strokes : 56.0	Rated speed rpm : 200  CRT mm min. : > 8.00  Testing:  Rated speed rpm : 300 rack travel mm : 6.00 Tolerance mm : + 0.10  Rated speed rpm : 400  TORQUE CONTROL Rated speed rpm : 1400
control lever position degree : -1 Rated speed rpm : 1565  Rack travel in mma : 7.50 Tolerance mmm : + 1.30  FULL LOAD DELIVERY AT FULL LOAD STOP  Rated speed rpm : 1400 Aneroid pressure hPa : - Del. quantity cm3/1000 strokes : 56.0 Tolerance cm3/1000 strokes : + 0.5 Check tolerance	Rated speed rpm : 200  CRT mm min. :> 8.00  Testing:  Rated speed rpm : 300 rack travel mm : 6.00 Tolerance mm : + 0.10  Rated speed rpm : 400  TORQUE CONTROL Rated speed rpm : 1400 rack travel mm : 8.55 Tolerance mm : + 0.05
control lever position degree : -1 Rated speed rpm : 1565  Rack travel in mma : 7.50 Tolerance mmm : + 1.30  FULL LOAD DELIVERY AT FULL LOAD STOP  Rated speed rpm : 1400 Aneroid pressure hPa : - Del. quantity cm3/1000 strokes : 56.0 Tolerance cm3/1000 strokes : + 0.5 Check tolerance cm3/1000s. : + 2.5	Rated speed rpm : 200  CRT mm min. :> 8.00  Testing:  Rated speed rpm : 300 rack travel mm : 6.00 Tolerance mm : + 0.10  Rated speed rpm : 400  TORQUE CONTROL Rated speed rpm : 1400 rack travel mm : 8.55 Tolerance mm : + 0.05  Rated speed rpm : 500
control lever position degree : -1 Rated speed rpm : 1565  Rack travel in mm : 7.50 Tolerance mm : + 1.30  FULL LOAD DELIVERY AT FULL LOAD STOP  Rated speed rpm : 1400 Aneroid pressure hPa : - Del. quantity cm3/1000 strokes : 56.0 Tolerance cm3/1000 strokes : + 0.5 Check tolerance cm3/1000s. : + 2.5 Spreed	Rated speed rpm : 200  CRT mm min. :> 8.00  Testing:  Rated speed rpm : 300 rack travel mm : 6.00 Tolerance mm :+ 0.10  Rated speed rpm : 400  TORQUE CONTROL Rated speed rpm : 1400 rack travel mm : 8.55 Tolerance mm :+ 0.05  Rated speed rpm : 500 rack travel mm : 9.65
control lever position degree : -1 Rated speed rpm : 1565  Rack travel in mm : 7.50 Tolerance mm : + 1.30  FULL LOAD DELIVERY AT FULL LOAD STOP  Rated speed rpm : 1400 Aneroid pressure hPa : - Del. quantity cm3/1000 strokes : 56.0  Tolerance cm3/1000 strokes : + 0.5 Check tolerance cm3/1000s. : + 2.5 Spreed Tolerance	Rated speed rpm : 200  CRT mm min. :> 8.00  Testing:  Rated speed rpm : 300 rack travel mm : 6.00 Tolerance mm : + 0.10  Rated speed rpm : 400  TORQUE CONTROL Rated speed rpm : 1400 rack travel mm : 8.55 Tolerance mm : + 0.05  Rated speed rpm : 500
control lever position degree : -1 Rated speed rpm : 1565  Rack travel in mm : 7.50 Tolerance mm : + 1.30  FULL LOAD DELIVERY AT FULL LOAD STOP  Rated speed rpm : 1400 Aneroid pressure hPa : - Del. quantity cm3/1000 strokes : 56.0  Tolerance cm3/1000 strokes : + 0.5 Check tolerance cm3/1000s. : + 2.5 Spreed Tolerance cm3/1000 strokes : 3.0	Rated speed rpm : 200  CRT mm min. : > 8.00  Testing:  Rated speed rpm : 300 rack travel mm : 6.00 Tolerance mm : + 0.10  Rated speed rpm : 400  TORQUE CONTROL Rated speed rpm : 1400 rack travel mm : 8.55 Tolerance mm : + 0.05  Rated speed rpm : 500 rack travel mm : 9.65 Tolerance mm : + 0.05
control lever position degree : - 1 Rated speed rpm : 1565  Rack travel in mm : 7.50 Tolerance mm : + 1.30  FULL LOAD DELIVERY AT FULL LOAD STOP  Rated speed rpm : 1400 Aneroid pressure hPa : - Del. quantity cm3/1000 strokes : 56.0 Tolerance cm3/1000 strokes : + 0.5 Check tolerance cm3/1000s. : + 2.5 Spreed Tolerance cm3/1000 strokes : 3.0 Check tolerance	Rated speed rpm : 200  CRT mm min. : > 8.00  Testing:  Rated speed rpm : 300 rack travel mm : 6.00 Tolerance mm : + 0.10  Rated speed rpm : 400  TORQUE CONTROL Rated speed rpm : 1400 rack travel mm : 8.55 Tolerance mm : + 0.05  Rated speed rpm : 500 rack travel mm : 9.65 Tolerance mm : + 0.05  Rated speed rpm : 905
control lever position degree : -1 Rated speed rpm : 1565  Rack travel in mm : 7.50 Tolerance mm : + 1.30  FULL LOAD DELIVERY AT FULL LOAD STOP  Rated speed rpm : 1400 Aneroid pressure hPa : - Del. quantity cm3/1000 strokes : 56.0  Tolerance cm3/1000 strokes : + 0.5 Check tolerance cm3/1000s. : + 2.5 Spreed Tolerance cm3/1000 strokes : 3.0	Rated speed rpm : 200  CRT mm min. : > 8.00  Testing:  Rated speed rpm : 300 rack travel mm : 6.00 Tolerance mm : + 0.10  Rated speed rpm : 400  TORQUE CONTROL Rated speed rpm : 1400 rack travel mm : 8.55 Tolerance mm : + 0.05  Rated speed rpm : 500 rack travel mm : 9.65 Tolerance mm : + 0.05  Rated speed rpm : 905
control lever position degree : - 1 Rated speed rpm : 1565  Rack travel in mm : 7.50 Tolerance mm : + 1.30  FULL LOAD DELIVERY AT FULL LOAD STOP  Rated speed rpm : 1400 Aneroid pressure hPa : - Del. quantity cm3/1000 strokes : 56.0 Tolerance cm3/1000 strokes : + 0.5 Check tolerance cm3/1000s. : + 2.5 Spreed Tolerance cm3/1000 strokes : 3.0 Check tolerance	Rated speed rpm : 200  CRT mm min. : > 8.00  Testing:  Rated speed rpm : 300 rack travel mm : 6.00 Tolerance mm : + 0.10  Rated speed rpm : 400  TORQUE CONTROL Rated speed rpm : 1400 rack travel mm : 8.55 Tolerance mm : + 0.05  Rated speed rpm : 500 rack travel mm : 9.65 Tolerance mm : + 0.05  Rated speed rpm : 905
control lever position degree : - 1 Rated speed rpm : 1565  Rack travel in mm : 7.50 Tolerance mm : + 1.30  FULL LOAD DELIVERY AT FULL LOAD STOP  Rated speed rpm : 1400 Aneroid pressure hPa : - Del. quantity cm3/1000 strokes : 56.0 Tolerance cm3/1000 strokes : + 0.5 Check tolerance cm3/1000s. : + 2.5 Spreed Tolerance cm3/1000 strokes : 3.0 Check tolerance	Rated speed rpm : 200  CRT mm min. : > 8.00  Testing:  Rated speed rpm : 300 rack travel mm : 6.00 Tolerance mm : + 0.10  Rated speed rpm : 400  TORQUE CONTROL Rated speed rpm : 1400 rack travel mm : 8.55 Tolerance mm : + 0.05  Rated speed rpm : 500 rack travel mm : 9.65 Tolerance mm : + 0.05  Rated speed rpm : 905

rack travel mm Tolerance mm	: +	8.80 0.10	
Start interlock	, <u></u>		
Rated speed rom	: >	100	
Rated speed rpm Rated speed rpm	: <	220	
Check			
speed 1/min Check	: >	80	
speed 1/min	: <	240	
FUEL DELIVERY CH	ARACTER	ISTICS	

Aneroid pressure hPa Rated speed rpm	:		900
Del. quantity cm3/1000 strokes Tolerance	:		<b>5</b> 3.5
cm3/1000 strokes Check tolerance	:	+-	1.0
cm3/1000s.	:	+-	3.5

Aneroid pressure		
hPa	:	_
Rated speed rpm	:	500
rack travel mm	:	9.30
Tolerance mm	: +	0.10
Del. quantity		
cm3/1000 strokes	:	45.5
Tolerance		
cm3/1000 strokes	: +-	1.0
Check tolerance		
cm3/1000s.	: +-	3.5

# STARTING FUEL DELIVERY

Rated speed rpm	:		100
rack travel mm	:		15.50
Tolerance mm	:	+-	0.20
Del. quantity			
cm3/1000 strokes	:		115.0
Tolerance			
cm3/1000 strokes	:	+-	5.0
Check tolerance			
cm3/1000s.	:	+-	8.0

L	.OW	ID	LE

kated speed rpm	:		300
Rack travel in mm Tolerance mm	:	+-	6.00 0.10
Del. quantity cm3/1000 strokes Tolerance	:		11.0
cm3/1000 strokes	:	+-	3.0
Check tolerance cm3/1000S. Spreed	:	+	5.0
Tolerance cm3/1000 strokes Check tolerance	:		2.5
cm3/1000s.	:		4.5

### Note remarks

Refer to Service Info for test and adjustment instructions. See microcard(s) W400/...

Edition : 27.01.98 Test oil : ISO 4113

Combination No. : 0 400 876 375

Injection pump

Pump designation : PES6A95D32ORS2693 EP type number : 0 410 896 914

Governor

Governer design. : RSV300...1300A0C2251

: R

Governer no. : 0 420 233 272

Cust. part No. :

Customer-spec. information

Customer : DAF Motor : NT 116

Power KW : 119.0

#### TEST BENCH REQUIREMENTS

Inlet line : 3.2

Test oil inlet

temp. °C : 40
Tolerance °C : + 2.0

Overflow valve : 1 419 992 198

Inlet press. bar : 1.5

Test nozzle holde

assembly : 0 681 343 009

Opening pressure

bar : 173.5 Tolerance bar : + 1.5

Test Lines : 1 680 750 015

Outside diameter : 6.0

x inside diameter: 1.5 x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES

Set equal delivery quant.

per values \_\_\_\_

BEGINNING OF DELIVERY

Test pressure bar : 26.0 Tolerance bar : + 1.0

Prestroke mm : 2.05
Tolerance mm : + 0.05
Check

tolerance mm : +- 0.10

Rack travel in mm : 9.00 Tolerance mm : + 1.50

Firing order : 1-5-3-6-2-

: 4

Phasing : 0-60-120-180-240

: -300

Tolerance :  $\leftarrow$  0.50

Check

tolerance  $^{\circ}NW$  :  $\leftarrow$  0.75

Beginning of delivery differende

and maximum rack

travel : 9.00
Tolerance mm : + 0.50
Difference CS : 3.00

BASIC SETTING

Rated speed rpm : 1290

Rack travel in mm : 10.35 Tolerance mm : ← 0.05

Del. quantity

cm3/1000 strokes : 62.0

Tolerance cm3/1000 strokes : + 0.5	+ Tolerance + cm3/1000 strokes : ← 0.5 + Check tolerance
Check tolerance cm3/1000s. : +- 2.5	+ cm3/1000s. : ← 2.5 + Spreed + Tolerance
Spreed	cm3/1000 strokes : 3.5 Check tolerance
Tolerance cm3/1000 strokes : 3.5	cm3/1000s. : 6.0
Check tolerance cm3/1000s. : 6.0	CONTROL LEVER
Rated speed rpm : 300	control lever position degree : 108.0 tolerance degree : + 4.0
Rack travel in mm: 5.90 Tolerance mm: + 0.10 Del. quantity cm3/1000 strokes: 8.0	RATED SPEED rack travel mm : 9.30 Rated speed rpm : 1345 Tolerance 1/min : +- 5
Tolerance cm3/1000 strokes : +- 2.0 Check tolerance cm3/1000S. : +- 4.5 Spreed	rack travel mm : 4.00 Rated speed rpm : 1405 Tolerance 1/min : + 15
Tolerance cm3/1000 strokes : 3.5 Check tolerance cm3/1000s : 5.5	rack travel mm : 0.85 Tolerance mm : + 0.55 Rated speed rpm : 1575
(B) SETTING OF INJECTION PUMP WITH GOVERNOR	rack travel mm : 4.00 Rated speed rpm : 1425 Tolerance 1/min : + 15
GUIDE SLEEVE POSITION	LOW IDLE
control lever position degree : - 3 Rated speed rpm : 800	control lever position degree : 75.0 tolerance degree : + 4.0
Rack travel in mm : 0.50 Tolerance mm : +- 0.20	Setting point w/out bumper spring
governor spring pre-tension click setting x : 5.50	Rated speed rpm : 300 rack travel mm : 6.40 Tolerance mm : + 0.10
ctick setting x : 5.50	Testing:
FULL LOAD DELIVERY AT FULL LOAD STOP Rated speed rpm : 850	Rated speed rpm : 300 rack travel mm : 5.90 Tolerance mm : + 0.10
Aneroid pressure hPa : - Del. quantity cm3/1000 strokes : 62.0	rack travel mm : 2.00 Rated speed rpm : 590 Tolerance 1/min : + 30

TORQUE CONTROL

Rated speed rpm : 1290 rack travel mm : 10.35 Tolerance mm : + 0.05

Rated speed rpm : 500 rack travel mm : 11.15 Tolerance mm : + 0.05

Rated speed rpm : 1050 rack travel mm : 10.60 Tolerance mm : + 0.10

## FUEL DELIVERY CHARACTERISTICS

Aneroid pressure

Rated speed rom : 1290

Del. quantity
cm3/1000 strokes : 69.0

cm3/1000 strokes : Tolerance

cm3/1000 strokes : + 1.0

Check tolerance

cm3/1000s. : +- 3.5

### LOW IDLE

Rated speed rpm : 300

Rack travel in mm: 5.90
Tolerance mm: + 0.10

Del. quantity

cm3/1000 strokes : 8.0

Tolerance cm3/1000 strokes : + 2.0

Check tolerance cm3/1000s. : +- 4.5

Spreed Tolerance

cm3/1000 strokes : 3.5

Check tolerance

cm3/1000s. : 5.5

#### Note remarks

Refer to Service Info for test and adjustment instructions. See microcard(s) W400/...

Edition : 21.01.98 Test oil : ISO 4113

combination No. : 0 402 736 842AA

Injection pump

Pump designation : PES6P120A120RS7281 EP type number : 0 412 726 890

Governor

Governer design. : RQV400...1250PA1060

: -1K

Governer no. : 0 421 815 344

Cust. part No. : 3933296

Customer-spec. information Customer : CDC Motor : 6BTA-A Power KW : 119.0

## TEST BENCH REQUIREMENTS

Inlet line : 3.2

Test oil inlet

temp. °C : 40 Tolerance °C : + 2.0

Overflow valve : 2 417 413 093

Inlet press. bar : 2.0 Tolerance bar : + 0.1

Test nozzle holde

assembly : 1 688 901 103

Opening pressure

bar : 208.5 Tolerance bar : + 1.5

Test Lines : 1 680 750 015

Outside diameter : 6.0

x inside diameter: 3.0 x length mm : 600

#### REMARKS

## (A) INJECTION PUMP SETTING VALUES

Set equal delivery quant.

per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 17.0 Tolerance bar : + 1.0

Prestroke mm : 3.60 Tolerance mm : + 0.05

Check

tolerance mm : + 0.10

Rack travel in mm : 10.50 Tolerance mm : + 1.50

Firing order : 1-5-3-6-2-

: 4

Phasing : 0-60-120-180-240

: -300

Tolerance :  $\leftarrow$  0.50

Check

tolerance \*NW : +- 0.75

Start of delivery blocking

\*NW after s.o.d. : 6.00 Tolerance : + 0.50

Check

tolerance \*NW : + 0.75

Barrel no. : 1

### BASIC SETTING

Rated speed rpm : 1250

Rack travel in mm: 13.35

Tolerance mm : + 0.05	+ guide sleeve
	+ travel mm : 3.04
Del. quantity	+ Tolerance mm : + 0.25
cm3/1000 strokes : 153.5	1
	Rated speed rpm : 1740
Tolerance	+ guide sleeve
cm3/1000 strokes : +- 1.0	+ travel mm : 11.50
CHO/TOOD STOKES . ** 1.0	Tolerance mm : + 0.50
Charle And anomas	T locerance like . + 0.50
Check tolerance	Ť
cm3/1000s. : $\leftarrow$ 4.0	
	+ FULL LOAD DELIVERY AT FULL LOAD STOP
Spreed	†
	+ Rated speed rpm : 1250
Tolerance	+ Aneroid pressure
cm3/1000 strokes : 8.0	+ hPa : 800
	+ Del. quantity
Check tolerance	- cm3/1000 strokes : 153.5
cm3/1000s. : 12.0	+ Tolerance
	+ cm3/1000 strokes : 1.0
	Check tolerance
	+ cm3/1000s. : +- 4.0
Dated aread non- 1 /20	
Rated speed rpm : 420	Spreed
	+ Tolerance
Rack travel in mm: 6.00	+ cm3/1000 strokes : 8.0
Tolerance mm : +- 0.20	+ Check tolerance
Del. quantity	+ cm3/1000s. : 12.0
cm3/1000 strokes : 15.5	+
Tolerance	<b>∔</b>
cm3/1000 strokes : +- 3.0	
Check tolerance	+ CONTROL LEVER
cm3/1000s. : +- 5.0	I CONTINUE LEVER
	T control lever
Spreed	
Tolerance	+ position degree : 120.0
cm3/1000 strokes : 4.0	+ tolerance degree : +- 4.0
Sheck tolerance	†
cm3/1000s. : 8.0	+ RATED SPEED
	+ rack travel mm : 12.30
	+ Rated speed rpm : 1325
(B) SETTING OF INJECTION PUMP	+ Tolerance 1/min : + 15
WITH GOVERNOR	<b>↓</b>
record was minimals	rack travel mm : 4.00
	Rated speed rpm : 1475
GUIDE SLEEVE TRAVEL	+ Tolerance 1/min : + 5
GOINE SEEFAE INMACE	T rocerdice mini
Dated around name : 1717	Track travel mm : 0.50
Rated speed rpm : 1313	
guide sleeve	+ Tolerance mm : ← 0.50 + Rated speed rpm : 1550
travel mm : 7.14	+ kated speed rpm : 1550
Tolerance mm : ← 0.15	<del>†</del>
	+
Rated speed rpm : 400	†
guide sleeve	<del> </del>
travel mm : 0.91	+ LOW IDLE
Tolerance mm : + 0.20	<b>1</b>
reservation into the stand	1
Rated speed rpm : 936	control lever
The second secon	position degree : 73.0
guide sleeve	
travel mm : 4.64	tolerance degree : + 4.0
Tolerance mm : + 0.25	The Amel Louis Mee
	+ Control Lever difference
Rated speed rpm : 640	+ Grad : 47.0

tolerance degree : +- 6.0	†
Setting point w/out bumper spring	Start interlock
Rated speed rpm : 400	Rated speed rpm : > 100
	Rated speed rpm : < 280
CRT mmm min. :> 5.80	† ghant
Tooking	+ Check + speed 1/min : > 80
Testing:	+ Check
Rated speed rpm : 420	speed 1/min : < 290
rack travel mm : 6.00	+
Tolerance mm : +- 0.20	
Retail speed man 4 /25	+ FUEL DELIVERY CHARACTERISTICS
Rated speed rpm : 425	I
	Aneroid pressure
TORQUE CONTROL	+ hPa : 800
Rated speed rpm : 1250	+ Rated speed rpm : 800
rack travel mma : 13.35	Del. quantity cm3/1000 strokes : 133.0
Tolerance mm : + 0.05	
	+ Tolerance
Rated speed rpm : 800 rack travel mm : 12.00	+ cm3/1000 strokes : +- 3.0
rack travel mm : 12.00 Tolerance mm : + 0.20	† Check tolerance
Tolerance mm : +- 0.20	+ cm3/1000s. : $+$ 6.0
	+ Spreed
Rated speed rpm : 500	+ Tolerance
rack travel mma : 11.60	+ cm3/1000 strokes : 8.0
Tolerance mm : +- 0.20	+ Check tolerance
	+ cm3/1000s. : 12.0
Rated speed rpm : 900 rack travel mm : 12.40	+
rack travel mm : 12.40	+
Tolerance mm : + 0.20	rack travel mm : 11.60 Tolerance mm : + 0.20
	† Tolerance mm : + 0.20
	Ť
ANEROID/ALTITUDE	A
COMPENSATOR TEST	+ Aneroid pressure
	+ hPa : -
CETTALO	Rated speed rpm : 1250
SETTING	+ Del. quantity + cm3/1000 strokes : 84.0
Dated around man . 1250	+ Tolerance
Rated speed rpm : 1250 Pressure hPa : 1200	cm3/1000 strokes : + 2.0
rressure iira : 1200	Check tolerance
Rated speed rpm : 1250	cm3/1000s. : + 4.0
Preceire has	1 0000 4.0
Pressure hPa : - rack travel mm : 9.15	1
Tolerance mm : + 0.20	
10(0) 00 100	+ STARTING FUEL DELIVERY
MEASUREMENT	+
	+ Rated speed rpm : 100
Rated speed rpm : 1250	+ rack travel mm : 13.50
	Rated speed rpm : 100 rack travel mm : 13.50 Tolerance mm : + 0.50
Pressure hPa : 310	† Del. quantity
rack travel mm : 12.30	+ cm3/1000 strokes : 155.0
rack travel mm : 12.30 Tolerance mm : + 0.30	† Tolerance
	+ cm3/1000 strokes : +- 20.0
Pressure hPa : 175	+ Check tolerance
rack travel mm : 10.20	+ cm3/1000s. : +- 25.0
Tolerance mm : + 0.20	+

# LOW IDLE

Rated speed rpm	:		420
Rack travel in mm			6.00
Tolerance mm	:	+-	0.20
Del. quantity			
cm3/1000 strokes	:		15.5
Tolerance			
cm3/1000 strokes	:	+-	3.0
Check tolerance	•		•••
cm3/1000s.		+-	5.0
Spreed	•	•	3.0
Tolerance			
· · · · <del>- ·</del> · · · ·	_		/ 0
cm3/1000 strokes	:		4.0
Check tolerance			
cm3/1000s.	:		8.0

#### Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 20.01.98 Test oil : ISO 4113

Combination No. : 0 402 776 825

Injection pump

Pump designation : PES6P120A720RS7382 EP type number : 0 412 726 943

60vernor

Governer design. : RSV400...1100P0A547

: -7

Governer no. : 0 421 833 496

Cust. part No. : RE501786

Customer—spec. information Customer : DEERE

Motor : 6081 AF001 Power KW : 205.0

#### TEST BENCH REQUIREMENTS

Inlet line : 4.2

Test oil inlet

temp. °C : 40
Tolerance °C : + 2.0

Overflow valve : 2 417 413 079

Inlet press. bar : 2.0

Test nozzle holde

assembly : 1 688 901 101

Opening pressure

bar : 208.5 Tolerance bar : + 1.5

Test lines : 1 680 750 015

Outside diameter : 6.0

x inside diameter: 3.0 x length mm : 600

**REMARKS** 

(A) INJECTION PUMP SETTING VALUES

Set equal delivery quant.

per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 17.0 Tolerance bar : + 1.0

Prestroke mm : 3.60 Tolerance mm : + 0.05

Check

tolerance mm : + 0.10

Rack travel in mm : 10.50 Tolerance mm : + 1.50

Firing order : 1-5-3-6-2-

: 4

Phasing : 0-60-120-180-240

: -300

Start of delivery mark

\*NW after s.o.d. : 7.50 Tolerance : + 0.50

Check

tolerance \*NW : + 0.75

Barrel no. : 1

Beginning of delivery differende

and maximum rack

travel : 14.00 Difference ° CS : 2.50

BASIC SETTING

Rated speed rpm : 1100

\_\_\_\_\_

Rack travel in mm: 11.80 +	
Tolerance mm : +- 0.05	FULL LOAD DELIVERY AT FULL LOAD STOP
Del. quantity cm3/1000 strokes : 198.0	Rated speed rpm : 1100 Aneroid pressure
+	hPa : 1400
Tolerance + cm3/1000 strokes : + 1.0	Del. quantity cm3/1000 strokes : 198.0
Check tolerance	Tolerance : + 1.0
cm3/1000s. : + 4.0	Check tolerance
Spreed	cm3/1000s. : +- 4.0 Spreed
opi ceu	Tolerance
Tolerance	cm3/1000 strokes : 5.0
cm3/1000 strokes : 5.0 +	Check tolerance
+	cm3/1000s. : 9.0
Check tolerance cm3/1000s. : 9.0	
	CONTROL LEVER
Rated speed rpm : 400	control lever
113154 Spots ( page 6 1755	position degree : 95.0
Rack travel in mm: 5.85	tolerance degree : +- 4.0
Tolerance mm : + 0.10 +	
Del. quantity + cm3/1000 strokes : 28.5 +	RATED SPEED : 10.80
Tolerance	rack travel mm : 10.80 Rated speed rpm : 1170
cm3/1000 strokes : + 3.0 +	Tolerance 1/min : + 5
Check tolerance +	
$cm3/1000s.$ : $\leftarrow$ 5.0 $+$	rack travel mm : 4.00
Spreed +	Rated speed rpm : 1225
Tolerance + cm3/1000 strokes : 8.0 +	Tolerance 1/min : +- 5
Check tolerance	rack travel mm : 0.85
cm3/1000s. : 12.0	Tolerance mm : + 0.55
+	Rated speed rpm : 1300
+	
(B) SETTING OF INJECTION PUMP	rack travel mm : 4.00
WITH GOVERNOR	Rated speed rpm : 1230 Tolerance 1/min : +- 15
1	rocci di loc i / Will
GUIDE SLEEVE POSITION T	
I	LOW IDLE
control lever	E-041 10-CE
position degree : -3	
Rated speed rpm : 800	control lever
Poek annual in m. a. 0.50	position degree : 72.0 tolerance degree : +- 4.0
Rack travel in mm: 0.50 + Tolerance mm: + 0.20 +	tolerance degree : +- 4.0
+	Setting point w/out bumper spring
governor spring + pre-tension +	Rated speed rpm : 400
click setting x : 3.25	rack travel mm : 5.35
+	rack travel mm : 5.35 Tolerance mm : +- 0.10
1	

Rated speed rpm : 100 CRT mm min. : > 19.00 Testing: Rated speed rpm : rack travel mm : 5.85 : + 0.10Tolerance mm TORQUE CONTROL Rated speed rpm : 1100 rack travel mm : 11.80 Tolerance mm : +- 0.05 Rated speed rpm : 800 rack travel mm : 12.40 : +- 0.10 Totarance ma ANEROID/ALTITUDE COMPENSATOR TEST SETTING 500 Rated speed rpm : Pressure hPa : 1400 500 Rated speed rpm : Pressure hPa 8.75 rack travel mm Tolerance mm : **←** 0.10 **MEASUREMENT** 500 Rated speed rpm : 880 Pressure hPa : rack travel mm 11.50 Tolerance mm : + 0.20 Pressure hPa : 450 9.70 rack travel mm : + - 0.05Tolerance mm FUEL DELIVERY CHARACTERISTICS Aneroid pressure 1400 hPa 800 Rated speed rpm : Del. quantity cm3/1000 strokes : 211.0

Check tolerance : +- 6.0 cm3/1000s. Aneroid pressure Rated speed rpm 500 Del. quantity cm3/1000 strokes : 93.0 Tolerance cm3/1000 strokes :  $\leftarrow$  2.0 Check tolerance cm3/1000s. : +- 4.0 STARTING FUEL DELIVERY Rated speed rom : 100 rack travel mm 20.50 : +- 0.50 Tolerance mm Del. quantity cm3/1000 strokes : 105.0 Tolerance cm3/1000 strokes :  $\leftarrow$  20.0 Check tolerance cm3/1000s. : **←** 25.0 LOW IDLE Rated speed rpm : 400 Rack travel in mm: Tolerance n :  $\leftarrow$  0.10 Del. quantity cm3/1000 strokes : 28.5 Tolerance cm3/1000 strokes : +- 3.0 Check tolerance cm3/1000s. : <del>+-</del> 5.0 Spreed Tolerance cm3/1000 strokes : 8.0

End of test specification sheet

12.0

Check tolerance cm3/1000s.

Tolerance

cm3/1000 strokes : + 3.0

#### Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 08.01.98 Test oil : ISO 4113

Combination No. : 0 403 466 181

Injection pump

Pump designation : PES6MW100/120RS1238

EP type number : 0 413 406 237

Governor

Governer design. : RSV500...1000MW0A409

Governer no. : 0 420 085 300

Cust. part No. : 3928288

Customer—spec. information Customer : CDC Motor : 6 CT Power KW : 133.0

## TEST BENCH REQUIREMENTS

Inlet line : 3.2

Test oil inlet

temp. °C : 40 Tolerance °S : +- 2.0

Overflow valve : 2 417 413 093

Inlet press. bar : 2.0 Tolerance bar : + 0.1

Test nozzle holde

assembly : 1 688 901 101

Opening pressure

bar : 208.5 Tolerance bar : + 1.5

Test Lines : 1 680 750 014

Outside diameter : 6.0

x inside diameter: 2.0 x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES

Set equal delivery quant.

per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 17.0 Tolerance bar : +- 1.0

Prestroke mm : 2.80
Tolerance mm : + 0.05
Check

tolerance mm : + 0.10

Rack travel in mm : 10.50 Tolerance mm : + 1.50

Firing order : 1-5-3-6-2-

4

Phasing : 0-60-120-180-240

: -300

Tolerance : +- 0.50

Check

tolerance \*NW : + 0.75

Start of delivery blocking

\*NW after s.o.d. : 7.50 Tolerance : +- 0.50

Check

tolerance \*NW : + 0.75

Barrel no. : 1

Beginning of delivery differende

and maximum rack

travel : 15.00 Difference \* CS : 2.00

BASIC SETTING	
Rated speed rpm	: 1000
Rack travel in mm Tolerance mm	: 11.75 : + 0.05
Del. quantity cm3/1000 strokes	: 136.5
Tolerance cm3/1000 strokes	: + 1.0
Check tolerance cm3/1000s.	: <del>+</del> 4.0
Spreed	
Tolerance cm3/1000 strokes	: 4.0
Check tolerance cm3/1000s.	: 7.5
Rated speed rpm	: 500
Rack travel in mm Tolerance mm Del. quantity	: 5.50 : + 0.10
cm3/1000 strokes Tolerance	: 21.5
cm3/1000 strokes Check tolerance	: +- 2.0
cm3/1000s. Spread	: <del>+</del> 4.5
Tolerance cm3/1000 strokes	: 3.5
Check tolerance cm3/1000s.	: 5.5
(B) SETTING OF IN WITH GOVERNOR	JECTION PUMP
GUIDE SLEEVE POSI	TION

click setting x: 4.00 FULL LOAD DELIVERY AT FULL LOAD STOP 1000 Rated speed rpm : Aneroid pressure : 1200 hPa Del. quantity cm3/1000 strokes : 136.5 Tolerance cm3/1000 strokes : + 1.0Check tolerance cm3/1000s.: +-4.0 Spreed Tolerance cm3/1000 strokes : 4.0 Check tolerance cm3/1000s. 7.5 CONTROL LEVER control lever position degree : 100.0 tolerance degree : +- 4.0 RATED SPEED rack travel mm : 10.70 Rated speed rpm : 1055 Tolerance 1/min : +rack travel mm 4.00 : 1160 Rated speed rpm : +- 5 Tolerance 1/min rack travel mm : 1.00 Tolerance mm : + 0.70 Rated speed rpm : 1250 4.00 rack travel mm : 1160 Rated speed rpm : Tolerance 1/min : +-LOW IDLE

control lever

Grad

position degree : 83.0 tolerance degree : + 4.0

: 17.0

Control lever difference

governor spring pre-tension

Rack travel in mm:

Tolerance mm :  $\leftarrow$  0.20

0.50

tolerance degree	: ← 6.0	†	
Setting point w/o	out bumper spring	FUEL DELIVERY CHARACTERISTICS	
Rated speed rpm rack travel mm Tolerance mm	: 5.00 : ← 0.10	Aneroid pressure hPa : 1200 Rated speed rpm : 750	
Rated speed rpm		+ Del. quantity + cm3/1000 strokes : 160.5	
CRT mm main.	: > 19.00	Tolerance cm3/1000 strokes : +- 2.0	
Testing:		+ Check tolerance + cm3/1000s. : + 5.0	
Rated speed rpm rack travel mm Tolerance mm	: 5.50	Spreed Tolerance cm3/1000 strokes : 6.0	
TORQUE CONTROL		theck tolerance cm3/1000s. : 9.0	
Rated speed rpm rack travel mm Tolerance mm	: 1000 : 11.75 : ← 0.05	rack travel mm : 12.45 Tolerance mm : + 0.20	
Rated speed rpm rack travel mm Tolerance mm	: 13.10	Aneroid pressure  hPa : -  Rated speed rpm : 500	
Rated speed rpm rack travel mm Tolerance mm	: 900 : 12.45 : ← 0.20	Del. quantity cm3/1000 strokes : 117.5 Tolerance cm3/1000 strokes : + 1.0	
ANEROID/ALTITUDE COMPENSATOR TEST		Check tolerance : + 3.0	
SETTING		STARTING FUEL DELIVERY	
Rated speed rpm Pressure hPa Rated speed rpm	: 500 : 1200 : 500	Rated speed rpm : 100 rack travel mm : 20.50 Tolerance mm : + 1.00 Del. quantity	
Pressure hPa rack travel mm Tclerance mm		- cm3/1000 strokes : 177.0 - Tolerance - cm3/1000 strokes : + 10.0 - Check tolerance	
MEASUREMENT		cm3/1000s. : + 13.0	
Rated speed rpm	: 500	‡	
Pressure hPa rack travel mm Tolerance mm	: 930 : 12.60 : ← 0.20	LOW IDLE  Rated speed rpm : 500	
Pressure hPa rack travel mm Tolerance mm	: 640 : 11.40 : ← 0.20	Rack travel in mm: 5.50  Rack travel in mm: 5.50  Tolerance mm: + 0.10  Del. quantity  cm3/1000 strokes: 21.5	

Tolerance cm3/1000 strokes Check tolerance cm3/1000s. Spreed	: +-	2.0 4.5
Tolerance cm3/1000 strokes Check tolerance cm3/1000s.	:	3.5 5.5

#### Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 07.01.98 Test oil : ISO 4113

Combination No. : F CO2 AUZ 061

Injection pump

Pump designation : PES4A95D320/3RS2927

EP type number : F 002 A10 017

Governor

Governer design. : RSV475...1100A2C941R

Governer no. : F 002 A20 242

Cust. part No. : 3930143

Customer—spec. information Customer : CDC Motor : 4BNA3.9 Power KW : 54.0

#### TEST BENCH REQUIREMENTS

Inlet line : 3.2

Test oil inlet

temp. °C : 40 Tolerance °C : + 2.0

Overflow valve : 2 417 413 093

Inlet press. bar : 2.0 Tolerance bar : + 0.1

Test nozzle holde

assembly : 1 688 901 101

Opening pressure

bar : 208.5 Tolerance bar : ← 1.5

Test lines : 1 680 750 014

Outside diameter : 6.0

x inside diameter : 2.0 x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES

Set equal delivery quant.

per values \_\_\_\_\_

# BEGINNING OF DELIVERY

Test pressure bar : 17.0 Tolerance bar : + 1.0

Prestroke mm : 2.85
Tolerance mm : + 0.05

Check

tolerance mm : + 0.10

Rack travel in mm: 10.50 Tolerance mm: +- 1.50

Firing order : 1-3-4-2

Phasing : 0-90-180-270

Tolerance  $: \leftarrow 0.50$ 

Check

tolerance \*NW : + 0.75

Start of delivery blocking

\*NW after s.o.d. : 9.50 Tolerance : + 0.50

Check

tolerance \*NW : +- 0.75

Barrel no. : 1

BASIC SETTING

Rated speed rpm : 1100

Rack travel in mm : 10.55 Tolerance mm : + 0.05

	+ rack travel mm : 4.00 + Rated speed rpm : 1250 + Tolerance 1/min : ← 15
Rated speed rpm : 475	Total and them to the state of
Rack travel in mm: 5.40 Tolerance mm : + 0.20	100 70 5
Del. quantity cm3/1000 strokes : 13.5 Tolerance	+ LOW IDLE
<pre>cm3/1000 strokes : + 2.0 Check tolerance cm3/1000s. : + 4.5</pre>	control lever position degree : 80.0 tolerance degree : + 4.0
Spreed Tolerance	Control lever difference
cm3/1000 strokes : 3.5 Check tolerance cm3/1000S. : 5.5	Grad : 20.0 tolerance degree : + 6.0
1 3,3	Setting point w/out bumper spring
(B) SETTING OF INJECTION PUMP WITH GOVERNOR	Rated speed rpm : 475 rack travel mm : 4.90 Tolerance mm : + 0.20
GUIDE SLEEVE POSITION	Rated speed rpm : 100
control lever	CRT mm min. : > 19.00  Testing:
position degree : - 3 Rated speed rpm : 800	Rated speed rpm : 475
Rack travel in mm : 0.50 Tolerance mm : + 0.20	rack travel mm : 5.40 Tolerance mm : + 0.20
governor spring pre-tension click setting x : 3.00	TORQUE CONTROL Rated speed rpm : 1100 rack travel mm : 10.55 Tolerance mm : + 0.05
CONTROL LEVER	Rated speed rpm : 600 rack travel mm : 10.55 Tolerance mm : + 0.20
control lever position degree : 100.0 tolerance degree : + 4.0	<u> </u>
RATED SPEED rack travel mm : 9.50 Rated speed rpm : 1175	FUEL DELIVERY CHARACTERISTICS
Tolerance 1/min ; + 5	Aneroid pressure hPa : -
rack travel mm : 4.00 Rated speed rpm : 1240 Tolerance 1/min : +- 5	Rated speed rpm : 600  Del. quantity  cm3/1000 strokes : 82.0
rack travel mm : 0.85	Tolerance cm3/1000 strokes : + 1.0
Tolerance mm : + 0.55 Rated speed rpm : 1350	Check tolerance cm3/1000s. : + 3.0 Spreed

Tolerance

3.5 cm3/1000 strokes :

Check tolerance

cm3/1000s. 6.0

### STARTING FUEL DELIVERY

100 Rated speed rpm rack travel mm : 20.50
Tolerance mm : + 0.50

Del. quantity cm3/1000 strokes : 120.0

Tolerance

cm3/1000 strokes : + 10.0

Check tolerance

cm3/1000s.: **←** 15.0

## LOW IDLE

Rated speed rpm : 475

Rack travel in mm: 5.40

: **←** 0.20 Tolerance mm Del. quantity

cm3/1000 strokes : 13.5

Tolerance

cm3/1000 strokes : + 2.0

Check tolerance

cm3/1000s. : +- 4.5

Spreed

Tolerance

3.5 cm3/1000 strokes :

Check tolerance

5.5 cm3/1000s.

#### Note remarks

Refer to Service Info for test and adjustment instructions. See microcard(s) W400/...

Edition

: 28.01.98 : ISO 4113

Test oil

Combination No. : F 002 A0Z 042

Injection pump

Pump designation : PES6A95D320/3RS2881

EP type number : 9 410 037 215

Governor

Governer design. : RSV500...1100A0C924R

Governer no. : F 002 A20 232

Cust. part No. : 3932477

Customer-spec. information

Customer : CDC : 6BT Motor : 82.0 Power KW

TEST BENCH REQUIREMENTS Inlet line : 3.2

Test oil inlet

temp. °C 40 : **←** 2.0 Tolerance °C

Overflow valve : 2 417 413 093

Inlet press. bar : 2.0 Tolerance bar : + 0.1

Test nozzle holde

: 1 688 901 101 assembly

Opening pressure

208.5 Tolerance bar : + 1.5

Test Lines : 1 680 750 014

Outside diameter : 6.0

x inside diameter: 2.0 x length mme : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES

Set equal delivery quant.

per values \_\_\_\_

BEGINNING OF DELIVERY

Test pressure bar : 17.0 Tolerance bar : + 1.0

Prestroke mm : 2.85 : + 0.05 Tolerance mm

Check

tolerance mm : ← 0.10

Rack travel in mm: 10.50 Tolerance mm : ← 1.50

Firing order : 1-5-3-6-2-

: 0-60-120-180-240 Phasing

: -300

Start of delivery blocking

\*NW after s.o.d. : 7.00 : + 0.50 Tolerance

Check

: + 0.75 tolerance \*NW

Barrel no. : 1

BASIC SETTING

Rated speed rpm : 1100

Rack travel in mm: 9.75 : **←** 0.05 Tolerance mm

Del. quantity

cm3/1000 strokes : 77.5

E01

	+	Del. quantity
Tolerance cm3/1000 strokes	: ← 1.0	cm3/1000 strokes : 77.5 Tolerance
Check tolerance		cm3/1000 strokes : +- 1.0 Check tolerance
cm3/1000s.	: + 3.0	cm3/1000s. : +- 3.0 Spreed
Spreed	‡	Tolerance cm3/1000 strokes : 3.5
Tolerance	<u> </u>	Check tolerance
cm3/1000 strokes	: 3.5	cm3/1000s. : 6.0
Check tolerance	: 6.0	
CINCY POOCO:		CONTROL LEVER
	• ‡	control lever
Rated speed rpm	: 500	position degree : 95.0
	+	tolerance degree : + 4.0
Rack travel in mo		RATED SPEED
Del. quantity		rack travel mm : 8.80
cm3/1000 strokes	: 18.5	Rated speed rpm : 1160
Tolorance	+	Tolerance 1/min : + 5
cm3/1000 strokes	: ← 2.0 +	made Americal arm
Check tolerance cm3/1000s.	: ← 4.5 I	rack travel mm : 5.40 Rated speed rpm : 1220
Spreed	1.3	Tolerance 1/min : + 5
Tolerance	+	
cm3/1000 strokes	: 3.5	rack travel mm : 0.85
Check tolerance	: 5.5	Tolerance mm : +- 0.55 Rated speed rpm : 1400
cm3/1000s.	: 5.5	Rated speed rpm : 1400
	+	rack travel mm : 5.40
(B) SETTING OF IN	NECTION PUMP	Rated speed rpm : 1225
WITH GOVERNOR	‡	Tolerance 1/min : +- 15
GUIDE SLEEVE POSI	TION	LOW IDLE
	+	
control lever	+	control lever
position degree Rated speed rpm		position degree : 80.0
nated speed i pin	. 555	tolerance degree : + 4.0
Rack travel in mm		
Tolerance mm	: ← 0.20 +	Control lever difference Grad : 15.0
governor spring	Ĭ	Grad : 15.0 tolerance degree : + 6.0
pre-tension	Ţ	total alloc acglico
click setting x	: 2.25	Setting point w/out bumper spring
		Rated speed rpm : 500
FULL LOAD DELIVER	Y AT FULL LOAD STOP	rack travel mm : 4.60
Dotad annad	: 1100	Tolerance mm : + 0.10
Rated speed rpm Aneroid pressure	: 1100	Rated speed rpm : 100
hPa	: - +	, , , , , , , , , , , , , , , , , , , ,
	+	CRT mmm min. : > 19.00

## Testing:

Rated speed rpm : 500 rack travel mm : 5.10 Tolerance mm : + 0.10

TORQUE CONTROL

Rated speed rpm : 1100 rack travel mm : 9.75 Tolerance mm : +- 0.05

Rated speed rpm : 800 rack travel mm : 10.80 Tolerance mm :  $\leftarrow 0.10$ 

## FUEL DELIVERY CHARACTERISTICS

Aneroid pressure

hPa : -Rated speed rpm : 800

Del. quantity

cm3/1000 strokes : 89.0

Tolerance

cm3/1000 strokes : + 2.0

Check tolerance

cm3/1000s. : + 4.0

## STARTING FUEL DELIVERY

Rated speed rpm : 100 rack travel mm : 20.50 Tolerance mm : + 0.50

Del. quantity

cm3/1000 strokes : 120.5

Tolerance

cm3/1000 strokes : + 10.0

Check tolerance

cm3/1000s. : +- 15.0

## LOW IDLE

Rated speed rpm : 500

Rack travel in mm: 5.10 Tolerance mm: + 0.10

Del. quantity

cm3/1000 strokes : 18.5

Tolerance

cm3/1000 strokes :  $\leftarrow$  2.0

Check tolerance

cm3/1000s. : +- 4.5

Spreed

Tolerance

cm3/1000 strokes : 3.5

Check tolerance

cm3/1000s. : 5.5

### Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 28.01.98 Test oil : ISO 4113

Combination No. : 0 402 046 861

Injection pump

Pump designation : PE6P110A320RS3329 EP type number : 0 412 016 743

Governor

Governer design. : RQ325/1300PA1150 Governer no. : 0 421 801 716

Cust. part No. : 1284420/4

Customer—spec. information Customer : DAF Motor : NS156M Power KW : 156.0

## TEST BENCH REQUIREMENTS

Inlet line : 3.2

Test oil inlet

temp. \*C : 40
Tolerance \*C : + 2.0

Overflow valve : 1 417 413 025

Inlet press. bar : 1.5
Tolerance bar : + 0.1

Test nozzle holde

assembly : 1 688 901 101

Opening pressure

bar : 208.5 Tolerance bar : + 1.5

Test Lines : 1 680 750 008

Outside diameter : 6.0

REMARKS

x inside diameter :

x length mm : 600

2.0

(A) INJECTION PUMP SETTING VALUES

Set equal delivery quant.

per values \_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 26.0 Tolerance bar : + 1.0

Prestroke mm : 5.25
Tolerance mm : + 0.05

Check

tolerance mm : + 0.10

Rack travel in mm : 20.50 Tolerance mm : + 0.50

Firing order : 1-5-3-6-2-

: 4

Phasing : 0-60-120-180-240

: -300

Tolerance :  $\leftarrow$  0.50

Check

tolerance \*NW : + 0.75

Start of delivery mark

Tolerance :  $\leftarrow$  0.10

Check

tolerance \*NW : + 0.75

Barrel no. : 1

BASIC SETTING

Rated speed rpm : 1000

Rack travel in mm : 11.85
Tolerance mm : + 0.05

E04

Del. quantity + cm3/1000 strokes : 144.0 +	Tolerance mm : + 0.10
Tolerance	Rated speed rpm : 590 guide sleeve
cm3/1000 strokes : + 1.0	travel mm : 6.00 Tolerance mm : + 0.10
Check tolerance cm3/1000s. : + 4.0	Rated speed rpm : 1570
Spreed	guide sleeve travel mm : 11.50 Tolerance mm : + 0.50
Tolerance	Total and tall
cm3/1000 strokes : 4.0	GUIDE SLEEVE POSITION
Check tolerance + cm3/1000S. : 7.5	
cm3/1000s. : 7.5	control lever position degree : 109
Rated speed rpm : 325	Rated speed rpm : 650
+	Rack travel in mm : 20.00
Rack travel in mm: 4.50 + Tolerance mm: : + 0.10 +	Tolerance mm : +- 0.80
Del. quantity	
cm3/1000 strokes : 26.0	FULL LOAD DELIVERY AT FULL LOAD STOP
Tolerance	Rated speed rpm : 1000
cm3/1000 strokes : + 2.5 + Check tolerance +	Rated speed rpm : 1000 Aneroid pressure
cm3/1000s. : + 5.0	hPa : 1000
Spreed	Del. quantity
Tolerance + cm3/1000 strokes : 12.0 +	cm3/1000 strokes : 144.0 Tolerance
Check tolerance	cm3/1000 strokes : +- 1.0
cm3/1000s. : 15.0	Check tolerance
†	cm3/1000s. : +- 4.0
(B) SETTING OF INJECTION PUMP	Spreed Tolerance
WITH GOVERNOR +	cm3/1000 strokes : 4.0
+	Check tolerance
GUIDE SLEEVE TRAVEL	cm3/1000s. : 7.5
GOIDE SEEEAE IMAGE	
Rated speed rpm : 1351	CANTEROL LEUED
guide steeve + travel mm : 6.37 +	CONTROL LEVER
Tolerance mm : + 0.10	control lever
+	position degree : 93.0
Rated speed rpm : 325	tolerance degree : + 4.0
guide sleeve † travel mm : 1.99 †	RATED SPEED
Tolerance mm : + 0.10 +	rack travel mm : 10.85
+	Rated speed rpm : 1345
Rated speed rpm : 1300	Tolerance 1/min : +- 5 Check
guide steeve travel m: : 6.00	speed 1/min : + 10
Tolerance mm : + 0.10	
+	rack travel mm : 4.00
Rated speed rpm : 427	Rated speed rpm : 1450 Tolerance 1/min : +- 15
guide sleeve travel mm : 3.54	10terance 1/18111 . •= 13

Check speed 1/min	: <b>←</b> 20
rack travel mm Tolerance mm Rated speed rpm	: +- 0.50
LOW IDLE	
control lever position degree tolerance degree	: 72.0 : + 4.0
Setting point w/o	out bumper spring
Rated speed rpm	: 225
CRT mm min.	: > 5.90
Testing:	
Rated speed rpm rack travel mm Tolerance mm	: 325 : 4.50 : + 0.10
rack travel mm Rated speed rpm	: 2.00 : 415
TORQUE CONTROL Rated speed rpm rack travel mm Tolerance mm	: 1000 : 11.85 : + 0.05
Rated speed rpm rack travel mm Tolerance mm	: 700 : 11.85 : + 0.05
Rated speed rpm rack travel mm Tolerance mm	: 1300 : 11.85 : +- 0.05
ANEROID/ALTITUDE COMPENSATOR TEST	
SETTING	
Rated speed rpm	: 600

rack travel mm Tolerance mm	: 7.35 : + 0.20
MEASUREMENT	
Rated speed rpm	: 600
Pressure hPa rack travel mm Tolerance mm	: 370 : 10.75 : ← 0.05
Pressure hPa rack travel mm Tolerance mm	: 200 : 8.40 : ← 0.10
FUEL DELIVERY CHA	RACTERISTICS
Aneroid pressure hPa Rated speed rpm Del. quantity cm3/1000 strokes Tolerance cm3/1000 strokes	: 145.0
Check tolerance cm3/1000s.	: <b>←</b> 5.0
rack travel mm Tolerance mm	: 11.85 : + 0.05
Aneroid pressure hPa Rated speed rpm Del. quantity cm3/1000 strokes	: - : 1000 : 94.0
Tolerance	
cm3/1000 strokes Check tolerance cm3/1000S.	: +- 1.0 : +- 3.5

Rated speed rpm : 600
Pressure hPa : 1000
rack travel mm : 11.85
Tolerance mm : + 0.05

Rated speed rpm : 600 Pressure hPa : -

## LOW IDLE

Rated speed rpm : 325

Rack travel in mm : 4.50
Tolerance mm : + 0.10
Del. quantity
cm3/1000 strokes : 26.0
Tolerance
cm3/1000 strokes : + 2.5

Check tolerance cm3/1000s. : + 5.0

Spreed

Tolerance

cm3/1000 strokes : 12.0

Check tolerance cm3/1000s. : 15.0

#### Note remarks

Refer to Service Info for test and adjustment instructions. See microcard(s) W400/...

Edition Test oil

: 28.01.98 : ISO 4113

Combination No. : 0 402 046 873

Injection pump

Pump designation : PES6P110A320RS3329 EP type number

: 0 412 016 743

**Governor** 

Governer design. : RQV325...1250PA1251

Governer no.

: 0 421 814 164

Cust. part No. : 1305227

Customer-spec. information : DAF

Customer

Motor

: NS177M

: 177.0 Power KW

## TEST BENCH REQUIREMENTS

Inlet line : 3.2

Test oil inlet

temp. °C

Tolerance °C

: + 2.0

Overflow valve : 1 417 413 000

Inlet press. bar :

1.5

Tolerance bar

: **←** 0.1

Tolerance l/h: + 10.0

Test nozzle holde

assembly

: 1 688 901 101

Opening pressure

bar

208.5

Tolerance bar

: **←** 1.5

Test Lines : 1 680 750 008

E08

Outside diameter : 6.0

x inside diameter:

2.0

x length mm :

600

### REMARKS

(A) INJECTION PUMP SETTING VALUES

Set equal delivery quant.

per values \_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 26.0

Tolerance bar : +- 1.0

Prestroke mm : 5.25 : + 0.05 Tolerance mm

Check

tolerance mm

: **←** 0.10

Rack travel in mm: 20.50

Tolerance m:  $\leftarrow 0.50$ 

: 1-5-3-6-2-Firing order

: 0-60-120-180-240 Phasing

: -300

: + 0.50Tolerance

Check

tolerance \*NW

: + 0.75

Start of delivery mark

Tolerance

: + 0.10

Check

tolerance "NW

: +- 0.75

Barrel no.

: 1

# BASIC SETTING

Rated speed rpm :

1000

Rack travel in mm: 12.25

Tolerance mm : + 0.05

Del. quantity cm3/1000 strokes	• 149 5	Tolerance mm : +	0.25
Tolerance		Rated speed rpm : guide sleeve	1510
cm3/1000 strokes	: +- 1.0	travel mm :	13.50 0.50
Check tolerance cm3/1000s.	: + 4.0		
Spreed		GUIDE SLEEVE POSITION	
		-	
Tolerance cm3/1000 strokes	: 12.0	control lever position degree : - Rated speed rpm :	1 1360
Check tolerance cm3/1000s.	: 15.0	Rack travel in mm :	11.25
		Tolerance mm : +	1.30
Rated speed rpm	: 325	FULL LOAD DELIVERY AT	FULL LOAD STOP
Rack travel in man		The second secon	1000
Tolerance mm Del. quantity	: ← 0.10	Aneroid pressure	1500
cm3/1000 strokes Tolerance	: 26.0	Del. quantity cm3/1000 strokes :	1/,0 5
cm3/1000 strokes	; <del>+</del> 2.5	Tolerance	
Check tolerance cm3/100Cs.	: ← 5.0	cm3/1000 strokes : +- Check tolerance	1.0
Spr <del>ee</del> d Tolerance	•	- cm3/1000s. : +- - Spreed	4.0
cm3/1000 strokes	: 4.0	Tolerance	42.0
Check tolerance cm3/1000S.	: 7.5	Check tolerance	12.0
	•	- cm3/1000s. :	15.0
(B) SETTING OF IN WITH GOVERNOR	JECTION PUMP		
	•	CONTROL LEVER	
GUIDE SLEEVE TRAV	EL	control lever	123.0
Rated speed rpm	: 1308	tolerance degree : +-	
guide sleeve travel mm	: 10.40	RATED SPEED	
Tolerance mm	: <b>←</b> 0.15		11.25
	•		1290
Rated speed rpm guide sleeve	: 325	- Tolerance 1/min : +- - Check	5
travel mm	: 1.25	- speed 1/min : +-	10
Tolerance mm	: ← 0.20	rack travel mm :	4.00
Rated speed rpm	: 868		1375
guide sleeve	-	Tolerance 1/min : +	15
travel mm	: 5.45	Check	20
Tolerance mm	: + 0.25	speed 1/min : +-	20
Rated speed rpm	: 520	- rack travel mm : - Tolerance mm : +	0.50 0.50
guide sleeve travel mm	: 3.02		1500

E09

## LOW IDLE

control lever

position degree : 76.0 tolerance degree : + 4.0

Setting point w/out bumper spring

Rated speed rpm : 225

CRT mm min. : > 5.90

Testing:

Rated speed rpm : 325
rack travel mm : 4.40
Tolerance mm : + 0.10

Rated speed rpm : 375

TORQUE CONTROL

Rated speed rpm : 1000 rack travel mm : 12.25 Tolerance mm : + 0.05

Rated speed rpm : 700 rack travel mm : 12.25 Tolerance mm : + 0.10

Rated speed rpm : 1250 rack travel mm : 12.25 Tolerance mm : + 0.10

ANEROID/ALTITUDE COMPENSATOR TEST

#### SETTING

Rated speed rpm : 600
Pressure hPa : 1500
rack travel nmm : 12.25
Tolerance nmm : + 0.05

Rated speed rpm: : 600
Pressure hPa : rack travel mm : 7.00
Tolerance mm : + 0.20

**MEASUREMENT** 

Rated speed rpm : 600

Pressure hPa : 430 rack travel mm : 10.90 Tolerance mm : +- 0.05

Pressure hPa : 220 rack travel mm : 7.85 Tolerance mm : + 0.10

## FUEL DELIVERY CHARACTERISTICS

Aneroid pressure hPa : 1500 Rated speed rpm : 700

Del. quantity cm3/1000 strokes : 153.0

Tolerance

cm3/1000s.

cm3/1000 strokes : + 3.0 Check tolerance

: + - 6.0

rack travel mm : 12.25
Tolerance mm : +- 0.10

Aneroid pressure
hPa : Rated speed rpm : 1000
Del. quantity

cm3/1000 strokes : 92.0
Tolerance
cm3/1000 strokes : +- 1.0

Check tolerance cm3/1000S. : ← 3.5

### LOW IDLE

Rated speed rpm : 325

Rack travel in mm: 4.40
Tolerance mm: + 0.10
Del. quantity
cm3/1000 strokes: 26.0
Tolerance
cm3/1000 strokes: + 2.5

Check tolerance cm3/1000s. : + 5.0 Spreed

Tolerance

Tolerance cm3/1000 strokes : 4.0 Check tolerance cm3/1000s. : 7.5

#### Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 28.01.98 Test oil : ISO 4113

Combination No. : 0 402 046 881

Injection pump

Pump designation : PES6P110A320RS3329

EP type number : 0 412 016 743

Governor

Governer design. : RQ325...1250PA1370

Governer no. : 0 421 801 828

Cust. part No. : 1305236

Customer—spec. information Customer : DAF Motor : NS177M Power KW : 177.0

### TEST BENCH REQUIREMENTS

Inlet line : 3.2

Test oil inlet

temp. °C : 40
Tolerance °C : +- 2.0

Overflow valve : 1 417 413 000

Inlet press. bar : 1.5 Tolerance bar : + 0.1

Overflow quantity

min. L/h : 140 Tolerance L/h : + 20.0

Test nozzle holde

assembly : 1 688 901 101

Opening pressure

bar : 208.5 Tolerance bar : + 1.5 Test lines : 1 680 750 008

Outside diameter : 2.0

x inside diameter: 6.0 x length mm : 600

#### REMARKS

(A) INJECTION PUMP SETTING VALUES

Set equal delivery quant.

per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 26.0 Tolerance bar : + 1.0

Prestroke mm : 5.25 Tolerance mm : + 0.05

Check

tolerance mm : + 0.10

Rack travel in mm : 20.50 Tolerance mm : + 0.50

Firing order : 1-5-3-6-2-

: 4

Phasing : 0-60-120-180-240

: -300

Tolerance :  $\leftarrow$  0.50

Check

tolerance \*NW : + 0.75

Start of delivery mark

Tolerance :  $\leftarrow$  0.10

Check

tolerance \*NW : + 0.75

Barret no. : 1

## BASIC SETTING

Rated speed rpm : 1000

Rack travel in mm : 12.25
Tolerance mm : + 0.05

	I modela al caso
Dal marks.	+ guide sleeve
Del. quantity cm3/1000 strokes : 149.5	+ travel mm : 3.48 + Tolerance mm : + 0.10
Carp/ 1000 Strokes . 147.3	T loter ance ium . += 0.10
Tolerance	Rated speed rpm : 590
cm3/1000 strokes : +- 1.0	guide sleeve
	+ travel mm : 6.00
Check tolerance	+ Tolerance mm : + 0.10
cm3/1000s. : + 4.0	+
	Rated speed rpm : 1460
Spreed	guide sleeve
Talamana	+ travel mm : 11.50 + Tolerance mm : +- 0.50
Tolerance cm3/1000 strokes : 4.0	Toterance in : +- 0.50
Castrokes : 4.0	I
Check tolerance	GUIDE SLEEVE POSITION
cm3/1000s. : 7.5	+
	+
	+ control lever
	+ position degree : 109
Rated speed rpm : 325	+ Rated speed rpm : 600
David Americal Sm. com. s. 1.10	Park Annual Same 20 00
Rack travel in mm: 4.40 Tolerance mm : + 0.10	+ Rack travel in mm: 20.00 + Tolerance mm: + 0.80
Tolerance mm : + 0.10 Del. quantity	Tolerance mm : + 0.80
cm3/1000 strokes : 26.0	I
Tolerance	FULL LOAD DELIVERY AT FULL LOAD STOP
cm3/1000 strokes : + 2.5	
Check tolerance	+ Rated speed rpm : 1000
$cm3/1000s.$ : $\leftarrow$ 6.0	+ Aneroid pressure
Spreed	+ hPa : 1500
Tolerance	+ Del. quantity
cm3/1000 strokes : 8.0	+ cm3/1000 strokes : 149.5
Check tolerance	Tolerance
cm3/1000s. : 12.0	+ cm3/1000 strokes : + 1.0 + Check tolerance
	- cm3/1000s. : +- 4.0
(B) SETTING OF INJECTION PUMP	+ Spreed
WITH GOVERNOR	Tolerance
	- cm3/1000 strokes : 4.0
	+ Check tolerance
GUIDE SLEEVE TRAVEL	+ cm3/1000s. : 7.5
	†
Rated speed rpm : 1292	†
guide sleeve	CONTROL LEVER
travel mm : 6.37 Tolerance mm : + 0.15	CONTROL LEVER
Toterarice mm : +- 0.15	T control lever
Rated speed rpm : 325	position degree : 97.0
guide steeve	+ tolerance degree : + 4.0
travel mm : 1.99	+
Tolerance mm : + 0.20	+ RATED SPEED
	+ rack travel mm : 11.25
Rated speed rpm : 1000	+ Rated speed rpm : 1290
guide sleeve	+ Tolerance 1/min : + 5
travel mm : 6.00 Tolerance mm : + 0.10	+ Check + speed 1/min : +- 10
Tolerance mm : + 0.10	+ speed 1/min : +- 10
Rated speed rpm : 426	Frack travel mm : 4.00
nated speed rail . TEO	+ Rated speed rpm : 1370
	1 managed alternation of the second

Tolerance 1/min : + 15

Check

: +speed 1/min 20

rack travel mm 0.50 : **←** 0.50 Tolerance mm Rated speed rpm : 1500

LOW IDLE

control lever

75.0 position degree : tolerance degree : + 4.0

Setting point w/out bumper spring

225 Rated speed rpm :

CRT mm min. :> 6.00

Testing:

Rated speed rpm : 325 rack travel mm : 4.40 : + 0.10Tolerance mm

rack travel mm : 2.00 Rated speed rpm : 415 Tolerance 1/min : +- 20

TORQUE CONTROL

Rated speed rpm : 1000 rack travel mm : 12.25 : **←** 0.05 Tolerance mm

Rated speed rpm : 1250 rack travel mm : 12.25 : + 0.10Tolerance mm

ANEROID/ALTITUDE COMPENSATOR TEST

SETTING

Rated speed rpm 600 Pressure hPa 1500 12.25 rack travel mm : **←** 0.05 Tolerance mm

600 Rated speed rpm : Pressure hPa 7.00 rack travel mm : + 0.20Tolerance mm

**MEASUREMENT** 

Rated speed rpm : 600

430 Pressure hPa 10.90 rack travel mm : +- 0.05 Tolerance mm

Pressure hPa 220 8.10 rack travel mm : : + 0.10 Tolerance mm

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure

1000 Rated speed rpm :

Del. quantity

cm3/1000 strokes : 92.0

Tolerance

cm3/1000 strokes :  $\leftarrow$  1.0

Check tolerance

cm3/1000s. : +- 4.0

LOW IDLE

Rated speed rpm : 325

Rack travel in mm: 4.40 Tolerance mm :  $\leftarrow$  0.10 Del. quantity

cm3/1000 strokes : 26.0

Tolerance

cm3/1000 strokes : +- 2.5

Check tolerance

cm3/1000s. : +- 6.0

Spreed

Tolerance

cm3/1000 strokes : 8.0

Check tolerance

12.0 cm3/1000s.:

#### Note remarks

Refer to Service Info for test and adjustment instructions. See microcard(s) W400/...

: 27.01.98 Edition : ISO 4113 Test oil

Combination No. : 0 402 076 820

Injection pump

Pump designation : PES6P120A720LS3395

EP type number : 0 412 026 806

Governor

Governer design. : RSV350...1200P0A688

Governer no. : 0 421 833 610

Cust. part No. :

Customer-spec. information

: FINCANTIERI Customer : L 1306 T 2 MSD Motor

: 370.0 Power KW

## TEST BENCH REQUIREMENTS

Inlet line : 4.2

Test oil inlet

temp. °C : + 2.0 Tolerance °C

Overflow valve : 1 417 413 047

Inlet press. bar : 1.5

Overflow quantity

min. L/h : 115 Tolerance L/h : ← 15.0

Test nozzle holde

: 1 688 901 105 assembly

Opening pressure

: 208.5 bar Tolerance bar : +- 1.5 Test Lines : 1 680 750 089

Outside diameter : 8.0

x inside diameter : 3.0 x length mm : 600

#### REMARKS

(A) INJECTION PUMP SETTING VALUES

Set equal delivery quant.

per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 26.0 Tolerance bar : + 1.0

Prestroke mm : 3.55
Tolerance mm : + 0.05

Check

tolerance mm :  $\leftarrow$  0.10

Rack travel in mm: 10.50 Tolerance mm:  $\leftarrow$  0.50

Firing order : 1-5A-3-6A-2

: - 4A

: 0-60-120-180-240 Phasing

: -300

: + 0.50 Tolerance

Check

tolerance \*NW : + 0.75

#### BASIC SETTING

Rated speed rpm : 1200

Rack travel in mm: 14.45 : +- 0.05 Tolerance mm

Del. quantity

cm3/1000 strokes : 276.0

Tolerance

cm3/1000 strokes : + 1.0

Check tolerance cm3/1000s. : +- 4.0	theck tolerance cm3/1000s. : +- 4.0 spreed
Spreed	+ Tolerance
Tolerance cm3/1000 strokes : 6.0	cm3/1000 strokes : 6.0 Check tolerance cm3/1000s. : 9.0
Check tolerance cm3/1000s. : 9.0	CONTROL LEVED
	CONTROL LEVER
Rated speed rpm : 350	control lever position degree : 100.0 tolerance degree : + 4.0
Rack travel in mm : 4.00	
Tolerance mm : + 0.10	+ RATED SPEED
Del. quantity	+ rack travel mm : 13.40
cm3/1000 strokes : 19.0	Rated speed rpm : 1245
Tolerance	+ Tolerance 1/min : + 5
cm3/1000 strokes : +- 3.0	+
Check tolerance	+ rack travel mm : 4.00
$cm3/1000s.$ : $\leftarrow$ 6.0	+ Rated speed rpm : 1410
Spreed	+ Tolerance 1/min : + 15
Tolerance	
cm3/1000 strokes : 8.0 Check tolerance	+ rack travel mm : 0.85 + Tolerance mm : + 0.55
cm3/1000s. : 12.0	+ Rated speed rpm : 1570
CM3/10003 12.0	T Rated speed (pill : 1570
(B) SETTING OF INJECTION PUMP	T
WITH GOVERNOR	LOW IDLE
WITH GOVERNOR	‡
	control lever
WITH GOVERNOR	control lever position degree : 78.0
GUIDE SLEEVE POSITION	control lever
GUIDE SLEEVE POSITION  control lever	control lever position degree : 78.0 tolerance degree : + 4.0
GUIDE SLEEVE POSITION  control lever position degree : - 3	control lever position degree : 78.0
GUIDE SLEEVE POSITION  control lever	control lever position degree : 78.0 tolerance degree : + 4.0  Setting point w/out bumper spring
GUIDE SLEEVE POSITION  control lever position degree : - 3	control lever position degree : 78.0 tolerance degree : + 4.0  Setting point w/out bumper spring  Rated speed rpm : 350 rack travel mm : 3.50
WITH GOVERNOR  GUIDE SLEEVE POSITION  control lever position degree : - 3 Rated speed rpm : 800	control lever position degree : 78.0 tolerance degree : + 4.0  Setting point w/out bumper spring  Rated speed rpm : 350
GUIDE SLEEVE POSITION  control lever position degree : - 3 Rated speed rpm : 800  Rack travel in mm : 0.50 Tolerance mm : + 0.20  governor spring	control lever position degree : 78.0 tolerance degree : + 4.0  Setting point w/out bumper spring  Rated speed rpm : 350 rack travel mm : 3.50
WITH GOVERNOR  GUIDE SLEEVE POSITION  control lever position degree : - 3 Rated speed rpm : 800  Rack travel in mm : 0.50 Tolerance mm : + 0.20  governor spring pre-tension	control lever position degree : 78.0 tolerance degree : + 4.0  Setting point w/out bumper spring  Rated speed rpm : 350 rack travel mm : 3.50 Tolerance mm : + 0.10  Testing:
GUIDE SLEEVE POSITION  control lever position degree : - 3 Rated speed rpm : 800  Rack travel in mm : 0.50 Tolerance mm : + 0.20  governor spring	control lever position degree : 78.0 tolerance degree : + 4.0  Setting point w/out bumper spring  Rated speed rpm : 350 rack travel mm : 3.50 Tolerance mm : + 0.10  Testing:  Rated speed rpm : 350
WITH GOVERNOR  GUIDE SLEEVE POSITION  control lever position degree : - 3 Rated speed rpm : 800  Rack travel in mm : 0.50 Tolerance mm : + 0.20  governor spring pre-tension	control lever position degree : 78.0 tolerance degree : + 4.0  Setting point w/out bumper spring  Rated speed rpm : 350 rack travel mm : 3.50 Tolerance mm : + 0.10  Testing:  Rated speed rpm : 350
WITH GOVERNOR  GUIDE SLEEVE POSITION  control lever position degree : - 3 Rated speed rpm : 800  Rack travel in mm : 0.50 Tolerance mm : + 0.20  governor spring pre-tension	control lever position degree : 78.0 tolerance degree : + 4.0  Setting point w/out bumper spring  Rated speed rpm : 350 rack travel mm : 3.50 Tolerance mm : + 0.10  Testing:  Rated speed rpm : 350 rack travel mm : 4.00 Tolerance mm : + 0.10
GUIDE SLEEVE POSITION  control lever position degree : - 3 Rated speed rpm : 800  Rack travel in mm : 0.50 Tolerance mm : + 0.20  governor spring pre-tension click setting x : 5.25  FULL LOAD DELIVERY AT FULL LOAD STOP	control lever position degree : 78.0 tolerance degree : + 4.0  Setting point w/out bumper spring  Rated speed rpm : 350 rack travel mm : 3.50 Tolerance mm : + 0.10  Testing:  Rated speed rpm : 350 rack travel mm : 4.00 Tolerance mm : + 0.10  rack travel mm : 2.00
WITH GOVERNOR  GUIDE SLEEVE POSITION  control lever position degree : - 3 Rated speed rpm : 800  Rack travel in mm : 0.50 Tolerance mm : + 0.20  governor spring pre-tension click setting x : 5.25  FULL LOAD DELIVERY AT FULL LOAD STOP  Rated speed rpm : 1200	control lever position degree : 78.0 tolerance degree : + 4.0  Setting point w/out bumper spring  Rated speed rpm : 350 rack travel mm : 3.50 Tolerance mm : + 0.10  Testing:  Rated speed rpm : 350 rack travel mm : 4.00 Tolerance mm : + 0.10  rack travel mm : 2.00 Rated speed rpm : 505
GUIDE SLEEVE POSITION  control lever position degree : - 3 Rated speed rpm : 800  Rack travel in mm : 0.50 Tolerance mm : + 0.20  governor spring pre-tension click setting x : 5.25  FULL LOAD DELIVERY AT FULL LOAD STOP  Rated speed rpm : 1200 Aneroid pressure	control lever position degree : 78.0 tolerance degree : + 4.0  Setting point w/out bumper spring  Rated speed rpm : 350 rack travel mm : 3.50 Tolerance mm : + 0.10  Testing:  Rated speed rpm : 350 rack travel mm : 4.00 Tolerance mm : + 0.10  rack travel mm : 2.00
GUIDE SLEEVE POSITION  control lever position degree : - 3 Rated speed rpm : 800  Rack travel in mm : 0.50 Tolerance mm : + 0.20  governor spring pre-tension click setting x : 5.25  FULL LOAD DELIVERY AT FULL LOAD STOP  Rated speed rpm : 1200 Aneroid pressure hPa : 1600	control lever position degree : 78.0 tolerance degree : + 4.0  Setting point w/out bumper spring  Rated speed rpm : 350 rack travel mm : 3.50 Tolerance mm : + 0.10  Testing:  Rated speed rpm : 350 rack travel mm : 4.00 Tolerance mm : + 0.10  rack travel mm : 2.00 Rated speed rpm : 505
GUIDE SLEEVE POSITION  control lever position degree : - 3 Rated speed rpm : 800  Rack travel in mm : 0.50 Tolerance mm : + 0.20  governor spring pre-tension click setting x : 5.25  FULL LOAD DELIVERY AT FULL LOAD STOP  Rated speed rpm : 1200 Aneroid pressure hPa : 1600 Del. quantity	control lever position degree : 78.0 tolerance degree : + 4.0  Setting point w/out bumper spring  Rated speed rpm : 350 rack travel mm : 3.50 Tolerance mm : + 0.10  Testing:  Rated speed rpm : 350 rack travel mm : 4.00 Tolerance mm : + 0.10  rack travel mm : 2.00 Rated speed rpm : 505 Tolerance 1/min : + 30
GUIDE SLEEVE POSITION  control lever position degree : - 3 Rated speed rpm : 800  Rack travel in mm : 0.50 Tolerance mm : + 0.20  governor spring pre-tension click setting x : 5.25  FULL LOAD DELIVERY AT FULL LOAD STOP  Rated speed rpm : 1200 Aneroid pressure hPa : 1600	control lever position degree : 78.0 tolerance degree : + 4.0  Setting point w/out bumper spring  Rated speed rpm : 350 rack travel mm : 3.50 Tolerance mm : + 0.10  Testing:  Rated speed rpm : 350 rack travel mm : 4.00 Tolerance mm : + 0.10  rack travel mm : 2.00 Rated speed rpm : 505 Tolerance 1/min : + 30
GUIDE SLEEVE POSITION  control lever position degree : - 3   Rated speed rpm : 800  Rack travel in mm : 0.50   Tolerance mm : + 0.20    governor spring pre-tension click setting x : 5.25  FULL LOAD DELIVERY AT FULL LOAD STOP  Rated speed rpm : 1200   Aneroid pressure hPa : 1600   Del. quantity cm3/1000 strokes : 276.0	control lever position degree : 78.0 tolerance degree : + 4.0  Setting point w/out bumper spring  Rated speed rpm : 350 rack travel mm : 3.50 Tolerance mm : + 0.10  Testing:  Rated speed rpm : 350 rack travel mm : 4.00 Tolerance mm : + 0.10  rack travel mm : 2.00 Rated speed rpm : 505 Tolerance 1/min : + 30

Rated speed rpm rack travel mm Tolerance mm	: 600 : 14.50 : ← 0.10
Rated speed rpm rack travel mm Tolerance mm	: 300 : 15.00 : ← 0.30
Rated speed rpm rack travel nom Tolerance mom	: 400 : 14.50 : ← 0.10
ANEROID/ALTITUDE COMPENSATOR TEST	
SETTING	
Rated speed rpm Pressure hPa rack travel mm Tolerance mm	: 600 : 1600 : 14.45 : + 0.05
Rated speed rpm Pressure hPa	: 600
rack travel mm Tolerance mm	: 10.00 : ← 0.10
MEASUREMENT	
Rated speed rpm	: 600
Pressure hPa rack travel mm	: 700

FUEL DELIVERY CH	ARACTERISTICS
------------------	---------------

: 1050

: + 0.05

13.25

Aneroid pressure hPa	:	1	1600
Rated speed rpm	:		600
Del. quantity cm3/1000 strokes Tolerance	:		349.0
cm3/1000 strokes	•	+-	3.0
	•	•	٥.٠
Check tolerance cm3/1000s.	:	+-	6.0

Aneroid	pressure
hPa	

Pressure hPa

Tolerance mm

rack travel mm

Rated speed rpm	:	600
Del. quantity		

cm3/1000 strokes : 230.0

Tolerance

cm3/1000 strokes : +-1.0

Check tolerance

cm3/1000s. : +- 4.0

Spreed Tolerance

cm3/1000 strokes : 10.0

Check tolerance

cm3/1000s. 14.0

## STARTING FUEL DELIVERY

ESS test: With 24 V solenoid activated. rack must reach start position in max. control lever setting.

Rated speed rpm	:	100
rack travei mm	:	20.25
Tolerance mm	: +-	- 0.75
Del. quantity		

cm3/1000 strokes : 500.0

Tolerance

cm3/1000 strokes :  $\leftarrow$  20.0

Check tolerance

cm3/1000s. : **←** 25.0

### LOW IDLE

Delivery for standard plunger/barrel assemblies. Zero delivery for shutoff assemblies (refer to cam sequence).

Rated speed rpm : 350

Rack travel in mm Tolerance mm	:	+	4.00 0.10
Del. quantity cm3/1000 strokes	:		19.0
Tolerance cm3/1000 strokes	:	+-	3.0
Check tolerance cm3/1000s.	:	+-	6.0
Spreed Tolerance			
cm3/1000 strokes Check tolerance	:		8.0
cm3/1000s.	:		12.0

#### Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 22.01.98 Test oil : ISO 4113

Combination No. : 0 402 648 780

Injection pump

Pump designation : PE8P120A320LS7871 EP type number : 0 412 628 877

Governor

Governer design. : RQV300...1050PA1078

: -2K

Governer no. : 0 421 815 548

Cust, part No. : 988 04 47

Customer—spec. information Customer : LIEBHERR

Motor : D 9408 TI-EA3

Power KW : 420.0

### TEST BENCH REQUIREMENTS

Inlet line : 3.1

Test oil inlet

temp. °C : 40 Tolerance °C : ← 2.0

Overflow valve : 1 417 413 047

Inlet press. bar : 2.0
Tolerance bar : + 0.1

Overflow quantity

min. L/h : 230 Tolerance L/h : + 20.0

Test nozzle holde

assembly : 1 688 901 105

Opening pressure

bar : 208.5 Tolerance bar : ← 1.5 Test lines : 1 680 750 075

Outside diameter : 8.0

x inside diameter: 3.0 x Length mm : 1000

#### REMARKS

(A) INJECTION PUMP SETTING VALUES

Set equal delivery quant.

per values \_\_\_\_\_

### BEGINNING OF DELIVERY

Test pressure bar : 26.0 Tolerance bar : + 1.0

Prestroke mm : 3.65
Tolerance mm : + 0.05

Check

tolerance mm : + 0.10

Rack travel in mm : 10.50
Tolerance mm : + 0.50

Firing order : 1-8-7-2-6

: - 3- 5- 4

Phasing : 0-45-90-135-180

: -225-270-315

Tolerance :  $\leftarrow$  0.50

Check

tolerance \*NW : + 0.75

## BASIC SETTING

Rated speed rpm : 1050

Rack travel in mm: 12.65
Tolerance mm: + 0.05

Del. quantity

cm3/1000 strokes : 295.0

Tolerance

cm3/1000 strokes : + 1.0

\_\_\_\_\_

Check tolerance cm3/1000s. : +- 4.0	CHINE SIEE/E DOCUTION
Spreed	+ GUIDE SLEEVE POSITION
Tolerance cm3/1000 strokes : 5.0	control lever position degree : - 1 Rated speed rpm : 1180
Check tolerance cm3/1000s. : 9.0	Rack travel in mm : 12.50 Tolerance mm : +- 2.70
Rated speed rpm : 350	FULL LOAD DELIVERY AT FULL LOAD STOP
Rack travel in mm: 4.90 Tolerance mm: + 0.10 Del. quantity cm3/1000 strokes: 30.0 Tolerance cm3/1000 strokes: + 3.0 Check tolerance cm3/1000s. : + 6.0 Spreed Tolerance cm3/1000 strokes: 6.0 Check tolerance cm3/1000 strokes: 10.0	Rated speed rpm : 1050  Aneroid pressure  hPa : 1600  Del. quantity  cm3/1000 strokes : 295.0  Tolerance  cm3/1000 strokes : + 1.0  Check tolerance  cm3/1000s. : + 4.0  Spreed  Tolerance  cm3/1000 strokes : 5.0  Check tolerance  cm3/1000 strokes : 9.0
(B) SETTING OF INJECTION PUMP WITH GOVERNOR	CONTROL LEVER
GUIDE SLEEVE TRAVEL	control lever
Rated speed rpm : 1117 guide sleeve travel mm : 10.27	<pre>position degree : 121.0 tolerance degree : + 4.0 RATED SPEED</pre>
Tolerance mm : + 0.15	rack travel mm : 11.65 Rated speed rpm : 1110
Rated speed rpm : 300 guide sleeve travel mm : 1.11	+ Tolerance 1/min : + 5 + rack travel mm : 4.00
Tolerance mm : +- 0.20	Rated speed rpm : 1200  Tolerance 1/min : +- 15
Rated speed rpm : 755 guide sleeve travel mm : 6.17	+ rack travel mm : 0.50 + Tolerance mm : + 0.50
Tolerance mm : + 0.25  Rated speed rpm : 480	+ Rated speed rpm : 1300
guide sleeve travel mm : 3.75 Tolerance mm : + 0.25	LOW IDLE
Rated speed rpm : 1330 guide sleeve travel mm : 13.50 Tolerance mm : + 0.50	control lever position degree : 73.0 tolerance degree : +- 4.0

Rated speed rpm	• 250
•	
CRT mm min.	: > 6.60
Testing:	
Rated speed rpm	
rack travel mm Tolerance mm	: 4.90 : + 0.10
Rated speed rpm	: 400
TORQUE CONTROL	
Rated speed rpm rack travel mm	: 1050 : 12.65
Tolerance mm	: 12.65 : + 0.05
Rated speed rpm rack travel mm	: 500
rack travel mm Tolerance mm	: 10.00 : + 0.10
Rated speed rpm	: 800
rack travel mm Tolerance mm	: 11.80 : + 0.10
Rated speed rpm rack travel mm	: 950 : 12.20 : + 0.10
Tolerance mm	: <b>←</b> 0.10
Rated speed rpm rack travel mm	
Tolerance mm	: 10.80 : + 0.20
ANEROID/ALTITUDE	
COMPENSATOR TEST	
SETTING	
Rated speed rpm Pressure hPa	: 1050 : 1600
rack travel mm	: 12.65
Toterance mm	: <b>←</b> 0.05
Rated speed rpm Pressure hPa	: 1050 : –
rack travel mm	: 8.30
Tolerance mm	: <b>←</b> 0.20
MEASUREMENT	
Rated speed rpm	: 1050
Pressure hPa	: 1050
ack travel mm	: 11.80

Tolerance mm	: + 0.05
Pressure hPa rack travel mm Tolerance mm	: 700 : 9.50 : ← 0.20
Start interlock	
Rated speed rpm Rated speed rpm	: > 100 : < 270
Check speed 1/min Check	: > 80
speed 1/min	: < 290
FUEL DELIVERY CHA	RACTERISTICS
Aneroid pressure hPa	: 1600
Rated speed rpm	
Del. quantity cm3/1000 strokes	: 280.0
Tolerance cm3/1000 strokes	: +- 3.0
Check tolerance cm3/1000s.	: +- 6.0
Aneroid pressure hPa Rated speed rpm rack travel mm Tolerance mm Del. quantity cm3/1000 strokes Tolerance cm3/1000 strokes	: 1600 : 800 : 11.80 : ← 0.10 : 299.0 : ← 3.0
Check tolerance cm3/1000s.	: <b>←</b> 6.0
Aneroid pressure hPa Rated speed rpm Del. quantity cm3/1000 strokes Tolerance cm3/1000strokes Check tolerance cm3/1000s. Spreed Tolerance cm3/1000 strokes Check tolerance cm3/1000strokes	: - : 550 : 209.0 : + 1.0 : + 4.0 : 8.0 : 12.0

## STARTING FUEL DELIVERY

Rated speed rpm : 100 rack travel mm : 10.00 Tolerance mm : +0.30Del. quantity cm3/1000 strokes : 180.0

Tolerance cm3/1000 strokes : +- 15.0

Check tolerance

cm3/1000s. : + 19.0

## LOW IDLE

Rated speed rpm : 350

Rack travel in mm: 4.90 Tolerance mm : ← 0.10 Del. quantity cm3/1000 strokes : 30.0

Tolerance

cm3/1000 strokes : + 3.0 Check tolerance

cm3/1000s.: **←** 6.0 Spreed

Tolerance

cm3/1000 strokes : 6.0

Check tolerance

10.0 cm3/1000s.

#### Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 22.01.98 Test oil : ISO 4113

Combination No. : 0 402 648 780A

Injection pump

Pump designation : PE8P120A320LS7871 EP type number : 0 412 628 877

**Governor** 

6overner design. : RQV300...1050PA1078

: -2K

6overner no. : 0 421 815 548

Cust. part No. : 988 04 47

Customer—spec. information
Customer : LIEBHERR
Motor : D 9408 TI-EA3

Power KW : 420.0

## TEST BENCH REQUIREMENTS

Inlet line : 3.1

Test oil inlet

temp. °C : 40
Tolerance °C : ← 2.0

Overflow valve : 1 417 413 047

Inlet press. bar : 2.0 Tolerance bar : + 0.1

Test nozzle holde

assembly : 1 688 901 105

Opening pressure

bar : 208.5 Tolerance bar : + 1.5

Test lines : 1 680 750 075

Outside diameter : 8.0

x inside diameter: 3.0 x length mm : 1000

### **REMARKS**

(A) INJECTION PUMP SETTING VALUES

Set equal delivery quant.

per values \_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : ∠6.0 Tolerance bar : ← 1.0

Prestroke mm : 3.65
Tolerance mm : + 0.05
Check

tolerance mma : + 0.10

Rack travel in mm: 10.50
Tolerance mm: + 1.50

Firing order : 1-8-7-2-6 :-3-5-4

Phasing : 0-45-90-135-180 : -225-270-315

Tolerance : + 0.50

Check

tolerance \*NW : + 0.75

## BASIC SETTING

Rated speed rpm : 1050

Rack travel in mm : 12.65
Tolerance mm : + 0.05

Del. quantity

cm3/1900 strokes : 295.0

Tolerance

cm3/1000 strokes : +- 1.0

Check tolerance

cm3/1000s. : +- 4.0

Spreed

	1
Tolerance cm3/1000 strokes : 5.0	control lever position degree : - 1 Rated speed rpm : 1182
Check tolerance cm3/1000s. : 9.0	Rack travel in mm: 12.48 Tolerance mm: + 1.30
Rated speed rpm : 350	FULL LOAD DELIVERY AT FULL LOAD STOP
Rack travel in mm: 4.90	Rated speed rpm : 1050
Tolerance mm : + 0.10	+ Aneroid pressure
Del. quantity	+ hPa : 1600
cm3/1000 strokes : 30.0	+ Del. quantity
Tolerance	+ cm3/1000 strokes : 295.0
cm3/1000 strokes : + 3.0	+ Tolerance
Check tolerance	+ cm3/1000 strokes : + 1.0
cm3/1000s. : +- 6.0 Spreed	+ Check tolerance + cm3/1000s. : + 4.0
Tolerance	+ Spreed
cm3/1000 strokes : 6.0	+ Tolerance
Check tolerance	+ cm3/1000 strokes : 5.0
cm3/1000s. : 10.0	+ Check tolerance
	+ cm3/1000s. : 9.0
WITH GOVERNOR	CONTROL LEVER
GUIDE SLEEVE TRAVEL	t control lever
Rated speed rpm : 1117 guide sleeve	position degree : 121.0 tolerance degree : + 4.0
travel mm : 10.27	+ RATED SPEED
Tolerance mm : + 0.15	rack travel mm : 11.65
700	Rated speed rpm : 1110
Rated speed rpm : 300 guide sleeve	Tolerance 1/min : + 5
travel mm : 1.11 Tolerance mm : + 0.20	+ rack travel mm : 4.00 + Rated speed rpm : 1200
Total di ile intri	Tolerance 1/min : + 15
Rated speed rpm : 755	+
guide sleeve	+ rack travel mm : 0.50
travel mm : 6.17	Tolerance mm : + 0.50
Tolerance mm : + 0.25	Rated speed rpm : 1300
Rated speed rpm : 480 guide sleeve	
travel mm : 3.75	1
Tolerance mm : + 0.25	LOW IDLE
Rated speed rpm : 1330	+
guide sleeve	control lever
travel mm : 13.50	position degree : 73.0
Tolerance mm : + 0.50	tolerance degree : +- 4.0
	T
GUIDE SLEEVE POSITION	Setting point w/out bumper spring  Pated speed rpm : 300

Rated speed rpm :

300

rack travel mm : 12.65 Tolerance mm : + 0.05  Rated speed rpm : 1050 Pressure hPa : - rack travel mm : 8.30 Tolerance mm : + 0.20  MEASUREMENT Rated speed rpm : 1050 Pressure hPa : 1050 rack travel mm : 11.80		
Rated speed rpm : 350 rack travel mm : 4.90 Tolerance mm : + 0.10  Rated speed rpm : 400  TORQUE CONTROL Rated speed rpm : 12.65 Tolerance mm : + 0.05  Rated speed rpm : 500 rack travel mm : 10.00 Tolerance mm : + 0.10  Rated speed rpm : 500 rack travel mm : 10.00 Tolerance mm : + 0.10  Rated speed rpm : 950 rack travel mm : 11.80 Tolerance mm : + 0.10  Rated speed rpm : 950 rack travel mm : 12.20 Tolerance mm : + 0.10  Rated speed rpm : 600 rack travel mm : 10.80 Tolerance mm : + 0.20  ANEROID/ALTITUDE COMPENSATOR TEST  SETTING  Rated speed rpm : 1050 Pressure hPa : 1050 Pressure hPa : - 1050 Pressure hPa : - 20  MEASUREMENT Rated speed rpm : 1050 Pressure hPa : 700	CRT mm min.	: > 6.60
rack travel mm       : 4.90         Tolerance mm       : + 0.10         Rated speed rpm       : 400         TORQUE CONTROL Rated speed rpm       : 1050         rack travel mm       : 12.65         Tolerance mm       : + 0.05         Rated speed rpm       : 500         rack travel mm       : 10.00         Tolerance mm       : + 0.10         Rated speed rpm       : 950         rack travel mm       : 12.20         Tolerance mm       : + 0.10         Rated speed rpm       : 600         rack travel mm       : 10.80         Tolerance mm       : + 0.20         ANEROID/ALTITUDE         COMPENSATOR TEST         SETTING         Rated speed rpm       : 1050         Pressure hPa       : 1050         rack travel mm       : + 0.05         Rated speed rpm       : 0.20         MEASUREMENT         Rated speed rpm       : 1050         Pressure hPa       : 1050         rack travel mm       : + 0.20         MEASUREMENT       : 1050         Pressure hPa       : 1050         Pressure hPa       : 1050 <t< th=""><th>Testing:</th><th></th></t<>	Testing:	
rack travel mm       : 4.90         Tolerance mm       : + 0.10         Rated speed rpm       : 400         TORQUE CONTROL Rated speed rpm         Rated speed rpm       : 1050         rack travel mm       : 12.65         Tolerance mm       : + 0.05         Rated speed rpm       : 500         rack travel mm       : 10.00         Tolerance mm       : + 0.10         Rated speed rpm       : 950         rack travel mm       : 12.20         Tolerance mm       : + 0.10         Rated speed rpm       : 600         rack travel mm       : 10.80         Tolerance mm       : + 0.20         ANEROID/ALTITUDE         COMPENSATOR TEST         SETTING         Rated speed rpm       : 1050         Pressure hPa       : 1050         rack travel mm       : + 0.25         MEASUREMENT       8.30         Rated speed rpm       : 1050         Pressure hPa       : 1050         rack travel mm       : + 0.20         MEASUREMENT       11.80         Roterance mm       : + 0.05         Pressure hPa       : 1050 <td< td=""><td>Rated speed rpm</td><td>: 350</td></td<>	Rated speed rpm	: 350
Rated speed rpm : 400  TORQUE CONTROL Rated speed rpm : 12.65 Tolerance mm : + 0.05  Rated speed rpm : 500 rack travel mm : 10.00 Tolerance mm : + 0.10  Rated speed rpm : 800 rack travel mm : 11.80 Tolerance mm : + 0.10  Rated speed rpm : 950 rack travel mm : 12.20 Tolerance mm : + 0.10  Rated speed rpm : 950 rack travel mm : 12.20 Tolerance mm : + 0.10  Rated speed rpm : 600 rack travel mm : 10.80 Tolerance mm : + 0.20  ANEROID/ALTITUDE COMPENSATOR TEST  SETTING  Rated speed rpm : 1050 Pressure hPa : 1050 Pressure hPa : - 0.05  Rated speed rpm : 8.30 Tolerance mm : + 0.20  MEASUREMENT  Rated speed rpm : 1050 Pressure hPa : - 0.20  MEASUREMENT  Rated speed rpm : 1050 Pressure hPa : 700		: 4.90
TORQUE CONTROL Rated speed rpm : 1050 rack travel mm : 12.65 Tolerance mm : + 0.05  Rated speed rpm : 500 rack travel mm : 10.00 Tolerance mm : + 0.10  Rated speed rpm : 800 rack travel mm : 11.80 Tolerance mm : + 0.10  Rated speed rpm : 950 rack travel mm : 12.20 Tolerance mm : + 0.10  Rated speed rpm : 950 rack travel mm : 12.20 Tolerance mm : + 0.10  Rated speed rpm : 600 rack travel mm : 10.80 Tolerance mm : + 0.20  ANEROID/ALTITUDE COMPENSATOR TEST  SETTING  Rated speed rpm : 1050 Pressure hPa : 1050 Pressure hPa : 8.30 Tolerance mm : + 0.20  MEASUREMENT Rated speed rpm : 1050 Pressure hPa : 700	Tolerance mm	: <b>←</b> 0.10
Rated speed rpm : 1050 rack travel mm : 12.65 Tolerance mm : + 0.05  Rated speed rpm : 500 rack travel mm : 10.00 Tolerance mm : + 0.10  Rated speed rpm : 800 rack travel mm : 11.80 Tolerance mm : + 0.10  Rated speed rpm : 950 rack travel mm : 12.20 Tolerance mm : + 0.10  Rated speed rpm : 600 rack travel mm : 10.80 Tolerance mm : + 0.20  ANEROID/ALTITUDE COMPENSATOR TEST  SETTING  Rated speed rpm : 1050 Pressure hPa : 1600 rack travel mm : 12.65 Tolerance mm : + 0.05  Rated speed rpm : 1050 Pressure hPa : 1050 Pressure hPa :	Rated speed rpm	: 400
rack travel mm       : 12.65         Tolerance mm       : + 0.05         Rated speed rpm       : 500         rack travel mm       : 10.00         Tolerance mm       : + 0.10         Rated speed rpm       : 800         rack travel mm       : 11.80         Tolerance mm       : + 0.10         Rated speed rpm       : 950         rack travel mm       : 12.20         Tolerance mm       : + 0.10         Rated speed rpm       : 10.80         Tolerance mm       : + 0.20         ANEROID/ALTITUDE       COMPENSATOR TEST         SETTING       Rated speed rpm       : 1050         Rated speed rpm       : 1050         Pressure hPa       : - 0.05         Rated speed rpm       : 8.30         Tolerance mm       : + 0.20         MEASUREMENT         Rated speed rpm       : 1050         Pressure hPa       : 1050         rack travel mm       : 11.80         Tolerance mm       : + 0.05         Pressure hPa       : 0.05         Pressure hPa       : 0.05         Pressure hPa       : 0.05         Pressure hPa       : 0.05	TORQUE CONTROL	
Tolerance mma	Rated speed rpm	: 1050
Rated speed rpm : 500 rack travel mm : 10.00 Tolerance mm : + 0.10  Rated speed rpm : 800 rack travel mm : 11.80 Tolerance mm : + 0.10  Rated speed rpm : 950 rack travel mm : 12.20 Tolerance mm : + 0.10  Rated speed rpm : 600 rack travel mm : 10.80 Tolerance mm : + 0.20  ANEROID/ALTITUDE COMPENSATOR TEST  SETTING  Rated speed rpm : 1600 rack travel mm : 12.65 Tolerance mm : + 0.05  Rated speed rpm : 1050 Pressure hPa : 1050 Pressure hPa :		
rack travel ann : 10.00 Tolerance mm : + 0.10  Rated speed rpm : 800 rack travel mm : 11.80 Tolerance mm : + 0.10  Rated speed rpm : 950 rack travel mm : 12.20 Tolerance mm : + 0.10  Rated speed rpm : 600 rack travel mm : 10.80 Tolerance mm : + 0.20  ANEROID/ALTITUDE COMPENSATOR TEST  SETTING  Rated speed rpm : 1600 rack travel mm : 12.65 Tolerance mm : + 0.05  Rated speed rpm : 1050 Pressure hPa : 1600 rack travel mm : 1050 Pressure hPa : - 0.05  Rated speed rpm : 8.30 Tolerance mm : + 0.20  MEASUREMENT  Rated speed rpm : 1050 Pressure hPa : 1050	Tolerance mm	: +- 0.05
Tolerance mm : + 0.10  Rated speed rpm : 800 rack travel mm : 11.80 Tolerance mm : + 0.10  Rated speed rpm : 950 rack travel mm : 12.20 Tolerance mm : + 0.10  Rated speed rpm : 600 rack travel mm : 10.80 Tolerance mm : + 0.20  ANEROID/ALTITUDE COMPENSATOR TEST  SETTING  Rated speed rpm : 1600 rack travel mm : 12.65 Tolerance mm : + 0.05  Rated speed rpm : 1050 Pressure hPa : 1600 rack travel mm : 1050 Pressure hPa : - 0.20  MEASUREMENT  Rated speed rpm : 1050 Pressure hPa : 1050		: 500
Rated speed rpm : 800 rack travel mm : 11.80 Tolerance mm : + 0.10  Rated speed rpm : 950 rack travel mm : 12.20 Tolerance mm : + 0.10  Rated speed rpm : 600 rack travel mm : 10.80 Tolerance mm : + 0.20  ANEROID/ALTITUDE COMPENSATOR TEST  SETTING  Rated speed rpm : 1600 rack travel mm : 12.65 Tolerance mm : + 0.05  Rated speed rpm : 1050 Pressure hPa : 1050 Pressure hPa :		: 10.00
rack travel mm       : 11.80         Tolerance mm       : + 0.10         Rated speed rpm       : 950         rack travel mm       : 12.20         Tolerance mm       : + 0.10         Rated speed rpm       : 600         rack travel mm       : 10.80         Tolerance mm       : + 0.20         ANEROID/ALTITUDE COMPENSATOR TEST         SETTING         Rated speed rpm       : 1600         rack travel mm       : 12.65         Tolerance mm       : + 0.05         Rated speed rpm       : 1050         Pressure hPa       : - 0.20         MEASUREMENT         Rated speed rpm       : 1050         Pressure hPa       : 1050         rack travel mm       : 1.80         Tolerance mm       : + 0.05         Pressure hPa       : 1050         Pressure hPa       : 1050         Pressure hPa       : 1050         Pressure hPa       : 700	Tolerance mm	: <del>+</del> 0.10
Tolerance mma : + 0.10  Rated speed rpm : 950 rack travel mm : 12.20 Tolerance mma : + 0.10  Rated speed rpm : 600 rack travel mms : 10.80 Tolerance mma : + 0.20  ANEROID/ALTITUDE COMPENSATOR TEST  SETTING  Rated speed rpm : 1600 rack travel mm : 12.65 Tolerance mm : + 0.05  Rated speed rpm : 1050 Pressure hPa : - rack travel mm : 8.30 Tolerance mm : + 0.20  MEASUREMENT  Rated speed rpm : 1050 Pressure hPa : 1050 Tolerance mm : + 0.05		
Rated speed rpm : 950 rack travel mm : 12.20 Tolerance mm : + 0.10  Rated speed rpm : 600 rack travel mm : 10.80 Tolerance mm : + 0.20  ANEROID/ALTITUDE COMPENSATOR TEST  SETTING  Rated speed rpm : 1600 rack travel mm : 12.65 Tolerance mm : + 0.05  Rated speed rpm : 1050 Pressure hPa : - 1050 Pressure hPa : 20  MEASUREMENT  Rated speed rpm : 1050 Pressure hPa : 1050		
rack travel mm : 12.20 Tolerance mm : + 0.10  Rated speed rpm : 600 rack travel mm : 10.80 Tolerance mm : + 0.20  ANEROID/ALTITUDE COMPENSATOR TEST  SETTING  Rated speed rpm : 1600 Pressure hPa : 1600 rack travel mm : 12.65 Tolerance mm : + 0.05  Rated speed rpm : 1050 Pressure hPa : - 0.05  Rated speed rpm : 8.30 Tolerance mm : + 0.20  MEASUREMENT  Rated speed rpm : 1050 Pressure hPa : 1050 Fressure hPa : 1050 Fressure hPa : 1050 Pressure hPa : 1050 Fressure hPa : 1050 Fressure hPa : 1050	lolerance mm	: +~ U.10
rack travel mm : 12.20 Tolerance mm : + 0.10  Rated speed rpm : 600 rack travel mm : 10.80 Tolerance mm : + 0.20  ANEROID/ALTITUDE COMPENSATOR TEST  SETTING  Rated speed rpm : 1600 Pressure hPa : 1600 rack travel mm : 12.65 Tolerance mm : + 0.05  Rated speed rpm : 1050 Pressure hPa :	Rated speed rpm	: 950
Rated speed rpm : 600 rack travel mm: 10.80 Tolerance mm : + 0.20  ANEROID/ALTITUDE COMPENSATOR TEST  SETTING  Rated speed rpm : 1050 Pressure hPa : 1600 rack travel mm : 12.65 Tolerance mm : + 0.05  Rated speed rpm : 1050 Pressure hPa : - rack travel mm : 8.30 Tolerance mm : + 0.20  MEASUREMENT  Rated speed rpm : 1050 Pressure hPa : 1050 Tolerance mm : 11.80 Tolerance mm : + 0.05	rack travel mm	: 12.20
rack travel mm: : 10.80 Tolerance mm : + 0.20  ANEROID/ALTITUDE COMPENSATOR TEST  SETTING  Rated speed rpm : 1600 Pressure hPa : 1600 rack travel mm : 12.65 Tolerance mm : + 0.05  Rated speed rpm : 1050 Pressure hPa : - rack travel mm : 8.30 Tolerance mm : + 0.20  MEASUREMENT  Rated speed rpm : 1050 Pressure hPa : 1050 Tolerance mm : + 0.05	Tolerance mm	: <b>←</b> 0.10
rack travel mm : 10.80 Tolerance mm : + 0.20  ANEROID/ALTITUDE COMPENSATOR TEST  SETTING  Rated speed rpm : 1600 Pressure hPa : 1600 rack travel mm : 12.65 Tolerance mm : + 0.05  Rated speed rpm : 1050 Pressure hPa : - rack travel mm : 8.30 Tolerance mm : + 0.20  MEASUREMENT  Rated speed rpm : 1050 Pressure hPa : 1050	Rated speed rom	: 600
Tolerance mm : + 0.20  ANEROID/ALTITUDE COMPENSATOR TEST  SETTING  Rated speed rpm : 1050	rack travel mms	: 10.80
COMPENSATOR TEST  SETTING  Rated speed rpm : 1050 Pressure hPa : 1600 rack travel mm : 12.65 Tolerance mm : + 0.05  Rated speed rpm : 1050 Pressure hPa : - rack travel mm : 8.30 Tolerance mm : + 0.20  MEASUREMENT  Rated speed rpm : 1050 Pressure hPa : 1050 Pressure hPa : 1050 rack travel mm : 11.80 Tolerance mm : + 0.05	Tolerance mm	
Rated speed rpm : 1050 Pressure hPa : 1600 rack travel mm : 12.65 Tolerance mm : + 0.05  Rated speed rpm : 1050 Pressure hPa : - rack travel mm : 8.30 Tolerance mm : + 0.20  MEASUREMENT  Rated speed rpm : 1050 Pressure hPa : 1050 Pressure hPa : 1050 rack travel mm : 11.80 Tolerance mm : + 0.05		
Pressure hPa : 1600 rack travel mm : 12.65 Tolerance mm :	SETTING	
Pressure hPa : 1600 rack travel mm : 12.65 Tolerance mm : + 0.05  Rated speed rpm : 1050 Pressure hPa : - rack travel mm : 8.30 Tolerance mm : + 0.20  MEASUREMENT  Rated speed rpm : 1050 Pressure hPa : 1050 rack travel mm : 11.80 Tolerance mm : + 0.05  Pressure hPa : 700	Rated speed rpm	: 1050
Tolerance mm : + 0.05  Rated speed rpm : 1050  Pressure hPa : - rack travel mm : 8.30  Tolerance mm : + 0.20  MEASUREMENT  Rated speed rpm : 1050  Pressure hPa : 1050  rack travel mm : 11.80  Tolerance mm : + 0.05  Pressure hPa : 700	Pressure hPa	: 1600
Rated speed rpm : 1050 Pressure hPa : - rack travel mm : 8.30 Tolerance mm : + 0.20  MEASUREMENT  Rated speed rpm : 1050 Pressure hPa : 1050 rack travel mm : 11.80 Tolerance mm : + 0.05  Pressure hPa : 700	rack travel mm	
Pressure hPa : - rack travel mm : 8.30 Tolerance mm : + 0.20  MEASUREMENT  Rated speed rpm : 1050  Pressure hPa : 1050 rack travel mm : 11.80 Tolerance mm : + 0.05  Pressure hPa : 700	Tolerance mm	: ← U.U5
rack travel mm : 8.30 Tolerance mm : + 0.20  MEASUREMENT  Rated speed rpm : 1050  Pressure hPa : 1050  rack travel mm : 11.80 Tolerance mm : + 0.05  Pressure hPa : 700	Rated speed rpm	: 1050
Tolerance mm : + 0.20  MEASUREMENT  Rated speed rpm : 1050  Pressure hPa : 1050  rack travel mm : 11.80  Tolerance mm : + 0.05  Pressure hPa : 700		. 9.70
MEASUREMENT  Rated speed rpm : 1050  Pressure hPa : 1050  rack travel mm : 11.80  Tolerance mm : + 0.05  Pressure hPa : 700	rack travel mm Tolerance mm	
Pressure hPa : 1050 rack travel mm : 11.80 Tolerance mm : + 0.05 Pressure hPa : 700	- -	
Pressure hPa : 700	Rated speed rpm	: 1050
Pressure hPa : 700	Pressure hPa	: 1050
Pressure hPa : 700	rack travel mm	: 11.80
	Tolerance mm	: <b>←</b> 0.05
	Pressure hPa	
	i ressure in a	

Tolerance mm	: <b>←</b> 0.20
Start interlock	
Rated speed rpm Rated speed rpm	: > 100 : < 270
Check speed 1/min	: > 80
Check speed 1/min	: < 290
FUEL DELIVERY CHA	RACTERISTICS
Aneroid pressure	
hPa Rated speed rpm Del. quantity	: 1600 : 500
cm3/1000 strokes Tolerance	: 280.0
cm3/1000 strokes Check tolerance	: <b>←</b> 3.0
cm3/1000s.	: <b>←</b> 6.0
Aneroid pressure hPa Rated speed rpm rack travel mm Tolerance mm	: 1600 : 800 : 11.80 : ← 0.10
Del. quantity cm3/1000 strokes Tolerance	: 299.0
cm3/1000 strokes Check tolerance	: +- 3.0
cm3/1000s.	: +- 6.0
Aneroid pressure	
hPa Rated speed rpm Del. quantity	: - : 550
cm3/1000 strokes Tolerance	: 209.0
cm3/1000 strokes Check tolerance	: +- 1.0
cm3/1000s. Spreed	: ← 4.0
Tolerance cm3/1000 strokes	: 8.0
Check tolerance cm3/1000s.	: 12.0

Rated speed rpm	:		100
rack travel mm	:		10.00
Tolerance mm	:	+-	0.30
Del. quantity			
cm3/1000 strokes	:		180.0
Tolerance			
cm3/1000 strokes	:	+-	15.0
Check tolerance			
cm3/1000s.	:	+-	19.0

# LOW IDLE

Rated speed rpm	:	350
Rack travel in mmn Tolerance mmn Del. quantity	: +-	4.90 0.10
cm3/1000 strokes Tolerance	:	30.0
cm3/1000 strokes Check tolerance	: +-	3.0
cm3/1000s. Spreed	: +	6.0
Tolerance cm3/1000 strokes	:	6.0
Check tolerance cm3/1000s.	:	10.0

#### Note remarks

Refer to Service Info for test and adjustment instructions. See microcard(s) W400/...

Edition Test oil : 28.01.98 : ISO 4113

Combination No. : 0 402 736 825

Injection pump

Pump designation : PES6P120A720/3LS7251

EP type number : 0 412 726 860

Governor

Governer design. : RQV300...1000PA962

: -8K

Governer no.

: 0 421 815 303

Cust. part No. : 3-7206

Customer-spec. information Customer : MAN

Motor : D2866LF09

Power KW

: 309.0

#### TEST BENCH REQUIREMENTS

Inlet line : 4.1

Test oil inlet

temp. °C

40

Tolerance °C

Overflow valve : 1 417 413 025

Inlet press. bar : 1.5

Test nozzle holde

assembly

: 1 688 901 105

Opening pressure

bar

208.5

Tolerance bar

: **←** 1.5

Test Lines : 1 680 750 089

Outside diameter : 8.0

x inside diameter : 3.0 x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES

Set equal delivery quant.

per values \_\_\_\_

BEGINNING OF DELIVERY

Test pressure bar : 26.0 Tolerance bar : + 1.0

Prestroke mm : 4.85 : +- 0.05 Tolerance mm

Check

: +- 0.10 tolerance mm

Rack travel in mm: 15.50

: **←** 0.50 Tolerance mm

: 6-2-4-1-5-Firing order

: 3

: 0-60-120-180-240 Phasing

: -300

Tolerance

: + 0.50

Check

tolerance \*NW : **←** 0.75

Start of delivery mark

Tolerance

: **←** 0.50

Check

tolerance \*NW : + 0.75

Barrel no.

: 6

BASIC SETTING

Patral annual name at 000	l mulida al asso
Rated speed rpm : 900	<pre>+ guide sleeve + travel mm : 6.01</pre>
	Tolerance man : + 0.25
Rack travel in mm : 13.95	+
Tolerance mm : + 0.05	Rated speed rpm : 301
***************************************	_ + guide sleeve
Del. quantity	travel mm : 3.26
cm3/1000 strokes : 296.0	$\frac{1}{1}$ Tolerance mm : +- 0.25
Tolerance	- T Rated speed rpm : 351
cm3/1000 strokes : + 1.0	- guide sleeve
	travel mm : 3.96
Check tolerance	Tolerance mm : +- 0.25
cm3/1000s. : $+-4.0$	†
	_ Rated speed rpm : 470
Spreed	guide sleeve travel mm : 4.39
Tolerance	Tolerance mm : + 0.25
cm3/1000 strokes : 10.0	Total drive limit
	Rated speed rpm : 1186
Check tolerance	guide sleeve
cm3/1000s. : 14.0	+ travel mm : 12.00
	_ + Tolerance mm : +- 0.25
	Rated speed rpm : 1280
Rated speed rpm : 300	guide sleeve
nated speed that . Soo	travel mm : 13.50
Rack travel in mm : 5.20	Tolerance mm : + 0.50
Tolerance mm : + 0.10	<del> </del>
	Į.
Del. quantity	
Del. quantity cm3/1000 strokes : 32.0	GUIDE SLEEVE POSITION
Del. quantity cm3/1000 strokes : 32.0 Tolerance	GUIDE SLEEVE POSITION
Del. quantity cm3/1000 strokes : 32.0 Tolerance cm3/1000 strokes : + 3.0	+
Del. quantity cm3/1000 strokes : 32.0 Tolerance	control lever
Del. quantity cm3/1000 strokes : 32.0 Tolerance cm3/1000 strokes : + 3.0 Check tolerance	+
Del. quantity cm3/1000 strokes : 32.0 Tolerance cm3/1000 strokes : + 3.0 Check tolerance cm3/1000s. : + 6.0 Spreed Tolerance	control lever position degree : - 1 Rated speed rpm : 1130
Del. quantity cm3/1000 strokes : 32.0 Tolerance cm3/1000 strokes : + 3.0 Check tolerance cm3/1000s. : + 6.0 Spreed Tolerance cm3/1000 strokes : 8.0	control lever position degree : - 1 Rated speed rpm : 1130 Rack travel in mm : 12.40
Del. quantity cm3/1000 strokes : 32.0 Tolerance cm3/1000 strokes : + 3.0 Check tolerance cm3/1000s. : + 6.0 Spreed Tolerance cm3/1000 strokes : 8.0 Check tolerance	control lever position degree : - 1 Rated speed rpm : 1130
Del. quantity cm3/1000 strokes : 32.0 Tolerance cm3/1000 strokes : + 3.0 Check tolerance cm3/1000s. : + 6.0 Spreed Tolerance cm3/1000 strokes : 8.0	control lever position degree : - 1 Rated speed rpm : 1130 Rack travel in mm : 12.40
Del. quantity cm3/1000 strokes : 32.0 Tolerance cm3/1000 strokes : + 3.0 Check tolerance cm3/1000s. : + 6.0 Spreed Tolerance cm3/1000 strokes : 8.0 Check tolerance	control lever position degree : - 1 Rated speed rpm : 1130 Rack travel in mm : 12.40
Del. quantity cm3/1000 strokes : 32.0 Tolerance cm3/1000 strokes : + 3.0 Check tolerance cm3/1000s. : + 6.0 Spreed Tolerance cm3/1000 strokes : 8.0 Check tolerance	control lever position degree : - 1 Rated speed rpm : 1130  Rack travel in mm : 12.40 Tolerance mm : + 2.00  FULL LOAD DELIVERY AT FULL LOAD STOP
Del. quantity cm3/1000 strokes : 32.0 Tolerance cm3/1000 strokes : + 3.0 Check tolerance cm3/1000s. : + 6.0 Spreed Tolerance cm3/1000 strokes : 8.0 Check tolerance cm3/1000s. : 12.0	control lever position degree : - 1 Rated speed rpm : 1130  Rack travel in mm : 12.40 Tolerance mm : + 2.00  FULL LOAD DELIVERY AT FULL LOAD STOP Rated speed rpm : 900
Del. quantity cm3/1000 strokes : 32.0 Tolerance cm3/1000 strokes : + 3.0 Check tolerance cm3/1000s. : + 6.0 Spreed Tolerance cm3/1000 strokes : 8.0 Check tolerance cm3/1000s. : 12.0  (B) SETTING OF INJECTION PUMP	control lever position degree : - 1 Rated speed rpm : 1130  Rack travel in mm : 12.40 Tolerance mm : + 2.00  FULL LOAD DELIVERY AT FULL LOAD STOP  Rated speed rpm : 900 Aneroid pressure
Del. quantity cm3/1000 strokes : 32.0 Tolerance cm3/1000 strokes : + 3.0 Check tolerance cm3/1000s. : + 6.0 Spreed Tolerance cm3/1000 strokes : 8.0 Check tolerance cm3/1000s. : 12.0  (B) SETTING OF INJECTION PUMP WITH GOVERNOR	control lever position degree : - 1 Rated speed rpm : 1130  Rack travel in mm : 12.40 Tolerance mm : + 2.00  FULL LOAD DELIVERY AT FULL LOAD STOP  Rated speed rpm : 900 Aneroid pressure hPa : 1200
Del. quantity cm3/1000 strokes : 32.0 Tolerance cm3/1000 strokes : + 3.0 Check tolerance cm3/1000s. : + 6.0 Spreed Tolerance cm3/1000 strokes : 8.0 Check tolerance cm3/1000s. : 12.0  (B) SETTING OF INJECTION PUMP	control lever position degree : - 1 Rated speed rpm : 1130  Rack travel in mm : 12.40 Tolerance mm : + 2.00  FULL LOAD DELIVERY AT FULL LOAD STOP  Rated speed rpm : 900 Aneroid pressure hPa : 1200 Del. quantity
Del. quantity cm3/1000 strokes : 32.0 Tolerance cm3/1000 strokes : + 3.0 Check tolerance cm3/1000s. : + 6.0 Spreed Tolerance cm3/1000 strokes : 8.0 Check tolerance cm3/1000s. : 12.0  (B) SETTING OF INJECTION PUMP WITH GOVERNOR	control lever position degree : - 1 Rated speed rpm : 1130  Rack travel in mm : 12.40 Tolerance mm : + 2.00  FULL LOAD DELIVERY AT FULL LOAD STOP  Rated speed rpm : 900 Aneroid pressure hPa : 1200
Del. quantity cm3/1000 strokes : 32.0 Tolerance cm3/1000 strokes : + 3.0 Check tolerance cm3/1000s. : + 6.0 Spreed Tolerance cm3/1000 strokes : 8.0 Check tolerance cm3/1000s. : 12.0  (B) SETTING OF INJECTION PUMP WITH GOVERNOR  GUIDE SLEEVE TRAVEL Rated speed rpm : 1055 guide sleeve	control lever position degree : - 1 Rated speed rpm : 1130  Rack travel in mm : 12.40 Tolerance mm : + 2.00  FULL LOAD DELIVERY AT FULL LOAD STOP  Rated speed rpm : 900 Aneroid pressure hPa : 1200 Del. quantity cm3/1000 strokes : 296.0 Tolerance cm3/1000 strokes : + 1.0
Del. quantity cm3/1000 strokes : 32.0 Tolerance cm3/1000 strokes : + 3.0 Check tolerance cm3/1000s. : + 6.0 Spreed Tolerance cm3/1000 strokes : 8.0 Check tolerance cm3/1000s. : 12.0  (B) SETTING OF INJECTION PUMP WITH GOVERNOR  GUIDE SLEEVE TRAVEL  Rated speed rpm : 1055 guide sleeve travel mm : 9.19	control lever position degree : - 1 Rated speed rpm : 1130  Rack travel in mm : 12.40 Tolerance mm : + 2.00  FULL LOAD DELIVERY AT FULL LOAD STOP  Rated speed rpm : 900 Aneroid pressure hPa : 1200 Del. quantity cm3/1000 strokes : 296.0 Tolerance cm3/1000 strokes : + 1.0 Check tolerance
Del. quantity cm3/1000 strokes : 32.0 Tolerance cm3/1000 strokes : + 3.0 Check tolerance cm3/1000s. : + 6.0 Spreed Tolerance cm3/1000 strokes : 8.0 Check tolerance cm3/1000s. : 12.0  (B) SETTING OF INJECTION PUMP WITH GOVERNOR  GUIDE SLEEVE TRAVEL Rated speed rpm : 1055 guide sleeve	control lever position degree : - 1 Rated speed rpm : 1130  Rack travel in mm : 12.40 Tolerance mm : + 2.00  FULL LOAD DELIVERY AT FULL LOAD STOP  Rated speed rpm : 900 Aneroid pressure hPa : 1200 Del. quantity cm3/1000 strokes : 296.0 Tolerance cm3/1000 strokes : + 1.0 Check tolerance cm3/1000s. : + 4.0
Del. quantity cm3/1000 strokes : 32.0 Tolerance cm3/1000 strokes : + 3.0 Check tolerance cm3/1000s. : + 6.0 Spreed Tolerance cm3/1000 strokes : 8.0 Check tolerance cm3/1000s. : 12.0  (B) SETTING OF INJECTION PUMP WITH GOVERNOR  GUIDE SLEEVE TRAVEL  Rated speed rpm : 1055 guide sleeve travel mm : 9.19 Tolerance mm : + 0.25	control lever position degree : - 1 Rated speed rpm : 1130  Rack travel in mm : 12.40 Tolerance mm : + 2.00  FULL LOAD DELIVERY AT FULL LOAD STOP  Rated speed rpm : 900 Aneroid pressure hPa : 1200 Del. quantity cm3/1000 strokes : 296.0 Tolerance cm3/1000 strokes : + 1.0 Check tolerance cm3/1000s. : + 4.0 Spreed
Del. quantity cm3/1000 strokes : 32.0 Tolerance cm3/1000 strokes : + 3.0 Check tolerance cm3/1000s. : + 6.0 Spreed Tolerance cm3/1000 strokes : 8.0 Check tolerance cm3/1000s. : 12.0  (B) SETTING OF INJECTION PUMP WITH GOVERNOR  GUIDE SLEEVE TRAVEL  Rated speed rpm : 1055 guide sleeve travel mm : 9.19 Tolerance mm : + 0.25  Rated speed rpm : 300	control lever position degree : - 1 Rated speed rpm : 1130  Rack travel in mm : 12.40 Tolerance mm : + 2.00  FULL LOAD DELIVERY AT FULL LOAD STOP  Rated speed rpm : 900 Aneroid pressure hPa : 1200 Del. quantity cm3/1000 strokes : 296.0 Tolerance cm3/1000 strokes : + 1.0 Check tolerance cm3/1000s. : + 4.0 Spreed Tolerance
Del. quantity cm3/1000 strokes : 32.0 Tolerance cm3/1000 strokes : + 3.0 Check tolerance cm3/1000s. : + 6.0 Spreed Tolerance cm3/1000 strokes : 8.0 Check tolerance cm3/1000s. : 12.0  (B) SETTING OF INJECTION PUMP WITH GOVERNOR  GUIDE SLEEVE TRAVEL  Rated speed rpm : 1055 guide sleeve travel mm : 9.19 Tolerance mm : + 0.25  Rated speed rpm : 300 guide sleeve	control lever position degree : - 1 Rated speed rpm : 1130  Rack travel in mm : 12.40 Tolerance mm : + 2.00  FULL LOAD DELIVERY AT FULL LOAD STOP  Rated speed rpm : 900 Aneroid pressure hPa : 1200 Del. quantity cm3/1000 strokes : 296.0 Tolerance cm3/1000 strokes : + 1.0 Check tolerance cm3/1000s. : + 4.0 Spreed Tolerance cm3/1000 strokes : 10.0
Del. quantity cm3/1000 strokes : 32.0 Tolerance cm3/1000 strokes : + 3.0 Check tolerance cm3/1000s. : + 6.0 Spreed Tolerance cm3/1000 strokes : 8.0 Check tolerance cm3/1000s. : 12.0  (B) SETTING OF INJECTION PUMP WITH GOVERNOR  GUIDE SLEEVE TRAVEL  Rated speed rpm : 1055 guide sleeve travel mm : 9.19 Tolerance mm : + 0.25  Rated speed rpm : 300 guide sleeve travel mm : 3.41	control lever position degree : - 1 Rated speed rpm : 1130  Rack travel in mm : 12.40 Tolerance mm : + 2.00  FULL LOAD DELIVERY AT FULL LOAD STOP  Rated speed rpm : 900 Aneroid pressure hPa : 1200 Del. quantity cm3/1000 strokes : 296.0 Tolerance cm3/1000 strokes : + 1.0 Check tolerance cm3/1000s: + 4.0 Spreed Tolerance cm3/1000 strokes : 10.0 Check tolerance
Del. quantity cm3/1000 strokes : 32.0 Tolerance cm3/1000 strokes : + 3.0 Check tolerance cm3/1000s. : + 6.0 Spreed Tolerance cm3/1000 strokes : 8.0 Check tolerance cm3/1000s. : 12.0  (B) SETTING OF INJECTION PUMP WITH GOVERNOR  GUIDE SLEEVE TRAVEL  Rated speed rpm : 1055 guide sleeve travel mm : 9.19 Tolerance mm : + 0.25  Rated speed rpm : 300 guide sleeve	control lever position degree : - 1 Rated speed rpm : 1130  Rack travel in mm : 12.40 Tolerance mm : + 2.00  FULL LOAD DELIVERY AT FULL LOAD STOP  Rated speed rpm : 900 Aneroid pressure hPa : 1200 Del. quantity cm3/1000 strokes : 296.0 Tolerance cm3/1000 strokes : + 1.0 Check tolerance cm3/1000s. : + 4.0 Spreed Tolerance cm3/1000 strokes : 10.0 Check tolerance

CONTROL LEVER	
control lever position degree tolerance degree	: 291.0 : ← 4.0
RATED SPEED rack travel mm Rated speed rpm Tolerance 1/min	: 1045
rack travel mm Rated speed rpm Tolerance 1/min	
rack travel mma Tolerance mma Rated speed rpma	: 0.50 : +- 0.50 : 1300
LOW IDLE	
control lever position degree tolerance degree	: 247.0 : + 4.0
Setting point w/d	out bumper spring
Rated speed rpm	: 200
CRT mm min.	: > 7.30
Testing:	
Rated speed rpm rack travel mms	: 300 : 5.20
Tolerance mm	: 5.20 : + 0.10
Tolerance mm Rated speed rpm	•
	•
Rated speed rpm TORQUE CONTROL Rated speed rpm rack travel mm	: 300 : 900 : 13.95
Rated speed rpm  TORQUE CONTROL Rated speed rpm rack travel mm Tolerance mm  Rated speed rpm rack travel mm	: 300 : 900 : 13.95 : + 0.05 : 1000 : 13.50
Rated speed rpm  TORQUE CONTROL Rated speed rpm rack travel mm Tolerance mm  Rated speed rpm rack travel mm Tolerance mm  Rated speed rpm rack travel mm Rated speed rpm	: 300 : 900 : 13.95 : + 0.05 : 1000 : 13.50 : + 0.10 : 750 : 13.40 : + 0.10

rack travel mm Tolerance mm	: 6.50 : + 0.10	
ANEROID/ALTITUDE COMPENSATOR TEST		
SETTING		
Rated speed rpm Pressure hPa rack travel mm Tolerance mm	: 900 : 1200 : 13.95 : ← 0.05	
Rated speed rpm Pressure hPa rack travel mm Tolerance mm	: 900 : - : 9.10 : ← 0.10	
MEASUREMENT		
Rated speed rpm	: 900	
Pressure hPa rack travel mm Tolerance mm	: 720 : 12.00 : ← 0.20	
Pressura hPa rack travel mm Tolerance mm	: 220 : 9.45 : + 0.05	
Start interlock		
Rated speed rpm Rated speed rpm	: > 100 : < 240	
Check speed 1/min	: > 80	
Check speed 1/min	: < 260	
FUEL DELIVERY CHARACTERISTICS		
Aneroid pressure hPa Rated speed rpm	: 1200 : 1000	
Del. quantity cm3/1000 strokes Tolerance	: 269.0	
cm3/1000 strokes Check tolerance	: + 3.0	
cm3/1000s.	: <b>←</b> 6.0	
Aneroid pressure hPa	: 1200	

Rated speed rpm rack travel mm	:		750 13.40
Tolerance man Del. quantity	•	+-	0.10
cm3/1000 strokes Tolerance	:		287.0
cm3/1000 strokes Check tolerance	:	+-	3.0
cm3/1000s.	:	+	6.0

Aneroid pressure		
hPa	:	1200
Rated speed rpm	:	750
Del. quantity		
cm3/1000 strokes	:	109.0
Tolerance		
cm3/1000 strokes	: .	← 5.0
Check tolerance		
cm3/1000s.	: .	₩ 8.0
Spreed		
Tolerance		
cm3/1000 strokes	:	10.0
Check tolerance		
cm3/1000s.	:	14.0

Aneroid pressure			
hPa	:		***
Rated speed rpm	:		500
Del. quantity			440.0
cm3/1000 strokes	:		169.0
Tolerance			
cm3/1000 strokes	:	+	1.0
Check tolerance			
cm3/1000s.	:	+-	4.0

# STARTING FUEL DELIVERY

Del. quantity cm3/1000 strokes	:	210.0
Tolerance cm3/1000 strokes Check tolerance	: +	- 10.0
cm3/1000s.	: +	- 14.0

Rated speed rpm	:	300
Rack travel in mma Tolerance mma Del. quantity	: +-	5.20 0.10
cm3/1000 strokes	:	32.0

Tolerance		
cm3/1000 strokes	: +-	3.0
Check tolerance		
cm3/1000s.	: +-	6.0
Spreed		
Tolerance		
cm3/1000 strokes	:	8.0
Check tolerance		
cm3/1000s.	:	12.0

#### Note remarks

Refer to Service Info for test and adjustment instructions. See microcard(s) W400/...

Edition Test oil

: 05.02.97 : ISO 4113

Combination No. : 9 400 087 503

Injection pump

Pump designation : PES5P120A720LS7280

EP type number : 9 400 087 087

Governor

Governer design. : RQV300...950PA1263

Governer no.

: 9 420 080 392

Cust. part No. : 0270740102

Customer-spec. information

Customer

: MB8

Motor

: OM 449 LA-SUROII

Power KW

: 205.0

### TEST BENCH REQUIREMENTS

Inlet line

: 4.1

Test oil inlet

temp. °C

40

Tolerance \*C

2.0

Overflow valve : 1 417 413 047

Inlet press. bar : 1.5

Test nozzle holde assembly

: 1 688 901 105

Opening pressure

bar

: 208.5

Tolerance bar

1.5

Test lines : 1 680 750 075

Outside diameter : 8.0

x inside diameter: 3.0 : 1000 x length mam

REMARKS

(A) INJECTION PUMP SETTING VALUES

Set equal delivery quant.

per values \_\_\_\_

BEGINNING OF DELIVERY

26.0 Test pressure bar :

Tolerance bar : + 1.0

Prestroke mm 4.65

: +- 0.05 Tolerance mm

Check

tolerance mm : + 0.10

Rack travel in mm: 21.00

Firing order : 1-3-5-4-2

: 0-72-144-216-288 Phasing

Tolerance : **←** 0.50

Check

tolerance °NW : **←** 0.75

BASIC SETTING

600 Rated speed rpm :

Rack travel in mm: 13.45

: **←** 0.05 Tolerance mm

Del. quantity

cm3/1000 strokes : 253.0

Tolerance

cm3/1000 strokes : +- 1.0

Check tolerance

cm3/1000s. : **←** 4.0

Spreed

Tolerance

cm3/1000 strokes :

5.0

Check tolerance cm3/1000s. : 9.0	Rack travel in mm : 16.50 Tolerance mm : + 1.30
Rated speed rpm : 300	FULL LOAD DELIVERY AT FULL LOAD STOP
Rack travel in mm : 5.30	Rated speed rpm : 600
Tolerance mm : + 0.10	+ Aneroid pressure + hPa : 1200
Del. quantity cm3/1900 strokes : 12.0	T nea : 1200 Del. quantity
Tolerance	cm3/1000 strokes : 253.0
cm3/1000 strokes : + 3.0	Tolerance
Check tolerance	cm3/1000 strokes : +- 1.0
cm3/1000s. : +- 6.0 Spreed	+ Check tolerance + cm3/1000s. : + 4.0
Tolerance	Spreed 4.0
cm3/1000 strokes : 8.0	Tolerance
Check tolerance	- cm3/1000 strokes : 5.0
cm3/1000s. : 12.0	Check tolerance
	cm3/1000s. : 9.0
(B) SETTING OF INJECTION PUMP	<u> </u>
WITH GOVERNOR	
	+ CONTROL LEVER
GUIDE SLEEVE TRAVEL	t control lever
COLDE DEFEAT HOUSE	position degree : 52.0
Rated speed rom : 700	tolerance degree : + 4.0
guide sleeve	+
travel mm : 5.45 Tolerance mm : +- 0.25	control lever
Tolerance mm : +- 0.25	+ position degree : 117.0 + tolerance degree : +- 4.0
Rated speed rpm : 1050	+ total unite degree
guide sleeve	+ RATED SPEED
travel mm : 7.80	rack travel mm : 12.10
Tolerance mm : + 0.10	+ Rated speed rpm : 1005 + Tolerance 1/min : + 5
Rated speed rpm : 300	+ Toterance Than
guide steeve	rack travel mm : 4.00
travel mm : 0.75	+ Rated speed rpm : 1125
Tolerance mm : + 0.25	Tolerance 1/min : + 15
Rated speed rpm : 500	rack travel mm : 0.50
guide sleeve	+ Tolerance mm : +- 0.50
travel mm : 3.55	Rated speed rpm : 1220
Tolerance mm : + 0.25	†
Rated speed rpm : 1165	I
guide sleeve	
travel mm : 9.45	LOW IDLE
Tolerance mm : + 0.25	†
	control lever
GUIDE SLEEVE POSITION	position degree : 83.0
	tolerance degree : +- 4.0
	+
control lever	control lever
position degree : - 1 Rated speed rpm : 1120	+ position degree : 18.0 + tolerance degree : +- 4.0
rated speed that . Iteu	to certaine degree 4.0

	† Pressure nra : 500
Setting point w/out bumper spring	rack travel mm : 0.60
	Tolerance mm : + 0.10
Rated speed rpm : 100	TOCCI GITEC IMM
Rated speed rpm ; 100	Ť
	+
CRT men min. :> 8.00	+ Start interlock
• • • • • • • • • • • • • • • • • • • •	
Tankin un	0-4-4
Testing:	+ Rated speed rpm : > 100
	+ Rated speed rpm : < 220
Rated speed rpm : 300	+
rack travel mm : 5.30	+ Check
rack travel mm : 5.30 Tolerance mm : + 0.10	
Tolerance mm : + 0.10	+ speed 1/min : > 80
	+ Check
Rated speed rpm : 325	+ speed 1/min : < 240
riacea opeca (par : oco	opeca minit
	Ť
	+
TORQUE CONTROL	→ FUEL DELIVERY CHARACTERISTICS
Rated speed rpm : 600	
rates speed (pin) . Oou	Ţ
rack travel mm : 13.45 Tolerance mm : + 0.05	
Tolerance mm : + 0.05	+ Aneroid pressure
Detect around name a OFA	+ hPa : 1200 + Rated speed rpm : 950
Rated speed rpm : 950 rack travel mm : 13.15 Tolerance mm : +- 0.05	+ Rated speed rpm : 950
rack travel mm : 13.15	+ Del. quantity
Tolerance mm : +- 0.05	+ cm3/1000 strokes : 234.0
	+ Tolerance
Rated speed rpm : 900	+ cm3/1000 strokes : + 2.0
rack travel mm : 13.15	+ Check tolerance
Tolerance mm : + 0.05	+ cm3/1000s. : $+$ 5.0
Total diffe min	
	+ Spreed
Rated speed rpm : 750 rack travel mm : 13.45	+ Tolerance
rack travel mm : 13.45	+ cm3/1000 strokes : 8.0
rack travel mm : 13.45 Tolerance mm : + 0.05	+ Check tolerance
roterance mm : U.U.	+ theck toterance
	+ cm3/1000s. : 12.0
Rated speed rpm : 800	1
mock though the 13 50	
rack travel mm : 13.50 Tolerance mm : + 0.10	1 47 45
Tolerance mm : + U.1U	rack travel mm : 13.15
	+ Tolerance mm : + 0.05
AMERICA /ALTYTICE	
ANEROID/ALTITUDE	
COMPENSATOR TEST	<ul> <li>Aneroid pressure</li> </ul>
	+ hPa : 1200
	Rated speed rpm : 750
SETTING	+ Del. quantity
	+ cm3/1000 strokes : 246.0
Rated speed rpm : 500	+ Tolerance
Pressure hPa : 1200	
rack travel mm : 13.45	+ Check tolerance
Tolerance mm : + 0.05	+ cm3/1000s. : $+$ 5.0
TOTAL GIFTON IIII	Spreed
500	
Rated speed rpm : 500	+ Tolerance
Pressure hPa : -	+ cm3/1000 strokes : 8.0
	- Check tolerance
MCACLIDEMENT	+ cm3/1000s. : 12.0
MEASUREMENT	T cmp/10009. : 12.0
	+
Rated speed rpm : 500	+
The same election to the same	Aneroid pressure
- In 700	
Pressure hPa : 700	+ hPa :
rack travel mm : 1.75	+ Rated speed rpm : 500
Tolerance mma : + 0.15	+ Del. quantity
TO COT CO TOO THE STATE OF TO	- cm3/1000 strokes : 143.0
	T CMD/ 1000 Strokes : 143.0

+ Pressure hPa : 500

Tolerance		4.0
cm3/1000 strokes Check tolerance	: +-	1.0
cm3/1000s.	: +-	4.0
Spreed		
Tolerance		
cm3/1000 strokes	:	5.0
Check tolerance		9.0
cm3/1000s.	-	<b>7.</b> 0

# STARTING FUEL DELIVERY

Rated speed rpm	:	100
Del. quantity cm3/1000 strokes	:	262.0
Tolerance cm3/1000 strokes	: +-	10.0
Check tolerance cm3/1000s.	: +	14.0

# LOW IDLE

Rated speed rpm	:	300	
Rack travel in man	:	5.30	
Tolerance mm	: +-	0.10	
Del. quantity		40.0	
cm3/1000 strokes	:	12.0	
Tolerance cm3/1000 strokes	: +-	3.0	
Check tolerance	•	•••	
cm3/1000s.	: +-	6.0	
Spreed			
Tolerance			
cm3/1000 strokes	:	8.0	
Check tolerance cm3/1000s.		12.0	
CHD/10003.	•	12.0	

#### Note remarks

Refer to Service Info for test and adjustment instructions. See microcard(s) W400/...

Edition Test oil

: 19.01.98 : ISO 4113

Combination No. : F 000 409 005

Injection pump

Pump designation : PES6P110A720RS3396 : F 000 400 004

EP type number

Governor

Governer design. : RQV300...1300PA1379K

: F 000 420 504 Governer no.

Cust. part No. : 0280742402

Customer spec. information

Customer

: MBB

Motor

: OMS66LA-EURO II

Power KW

: 155.0

### TEST BENCH REQUIREMENTS

Inlet line

: 4.1

Test oil inlet

temp. °C

40

Tolerance "C

: + 2.0

Overflow valve : 1 417 413 047

Inlet press. bar :

2.3

Test nozzle holde

assembly

: 1 688 901 101

Opening pressure

bar

208.5

Tolerance bar

Test Lines

: 1 680 750 015

Outside diameter :

6.0

x inside diameter: 3.0 x length mm 600

REMARKS

(A) INJECTION PUMP SETTING VALUES

Set equal delivery quant.

per values \_\_\_\_\_

BEGINNING OF DELIVERY

25.0 Test pressure bar :

Tolerance bar :  $\leftarrow$  1.0

3.20 Prestroke mm

Tolerance mm : + 0.05

Check

: **←** 0.10 tolerance mm

Rack travel in mm: 21.00

: 1-5-3-6-2-Firing order

: 4

Phasing : 0-60-120-180-240

: -300

: +- 0.50 Tolerance

Check

tolerance "NW : +- 0.75

BASIC SETTING

Rated speed rpm : 1300

14,00 Rack travel in mm :

Tolerance mm : **←** 0.05

Del. quantity

cm3/1000 strokes : 115.5

Tolerance

cm3/1000 strokes :  $\leftarrow$  1.0

Check tolerance

cm3/1000s.

4.0 : +-

Spreed

_	
Tolerance	+ Tolerance
cm3/1000 strokes : 4.0	+ cm3/1000 strokes : + 1.0
	_ + Check tolerance
Check tolerance	+ cm3/1000s. : +- 4.0
cm3/1000s. : 7.5	Spreed
	_ + Tolerance
	+ cm3/1000 strokes : 4.0
	+ Check tolerance
Rated speed rpm : 300	+ cm3/1000s. : 7.5
	†
Rack travel in mm: 5.60	†
Tolerance mm : + 0.20	00177001 1 71/50
Del. quantity	+ CONTROL LEVER
cm3/1000 strokes : 10.0	T
Tolerance	+ control lever
cm3/1000 strokes : + 2.5	position degree : 110.0
Check tolerance	tolerance degree : + 4.0
cm3/1000s. : + 5.0	DATES COMES
Spreed	RATED SPEED
Tolerance	rack travel mm : 12.90
cm3/1000 strokes : 4.5	+ Rated speed rpm : 1340 + Tolerance 1/min : + 5
Check tolerance cm3/1000s. : 7.5	Tolerance 1/min : + 5
cm3/1000s. : 7.5	† rack travel mm : 4.00
	+ rack travel mm : 4.00 + Rated speed rpm : 1485
(B) SETTING OF INJECTION PUMP	Tolerance 1/min : + 15
WITH GOVERNOR	T rocerance main . +- 13
MILL GOACUMOK	rack travel mm : 0.50
	+ Tolerance mm : + 0.50
GUIDE SLEEVE TRAVEL	Rated speed rpm : 1600
GOIVE SECENT HAVEE	Tracea speca i più
Rated speed rpm : 1356	1
guide sleeve	1
travel mm : 9.16	
Tolerance mm : + 0.10	- LOW IDLE
	1
Rated speed rpm : 300	+
guide sleeve	+ control lever
travel mm : 1.45	<pre>position degree : 65.0</pre>
Tolerance mm : +- 0.25	tolerance degree : + 4.0
	+
Rated speed rpm : 530	+ Setting point w/out bumper spring
guide steeve	†
travel mm : 4.01	+ Rated speed rpm : 200
Tolerance mm : + 0.25	†
4700	+ CRT mm min. :> 7.00
Rated speed rpm : 1720	Tanking
guide steeve	† Testing:
travel mm : 13.50	† D. A. of The Control of The Contro
Tolerance mm : + 0.25	+ Rated speed rpm : 300
	rack travel mm : 5.60 Tolerance mm : + 0.20
FILL LOAD DELTUEDU AT FILL LOAD CTOD	t locerance mm : +- U.ZU
FULL LOAD DELIVERY AT FULL LOAD STOP	+ Rated speed rpm : 425
Rated speed rpm : 1300	+ Rated speed rpm : 425
	I
Aneroid pressure hPs : 1000	TORQUE CONTROL
Del. quantity	Rated speed rpm : 1300
cm3/1000 strokes : 115.5	rack travel mm · 14 M
CHOLIGOR STUCKES ! 113/3	rack travel mm : 14.00 Tolerance mm : + 0.05
	1 local direction

Rated speed rpm rack travel mm Tolerance mm	: 600 : 13.00 : + 0.05	‡	Tolerance cm3/1000 strokes Check tolerance cm3/1000S.	: +- 2.0 : +- 5.0
Rated speed rpm rack travel mm Tolerance mm		‡	Aneroid pressure hPa Rated speed rpm	: 1000 : 780
Rated speed rpm rack travel mm Tolerance mm	: 1000 : 13.75 : ← 0.05	‡	rack travel mm Tolerance mm Del. quantity cm3/1000 strokes	: 13.25 : + 0.05
ANEROID/ALTITUDE COMPENSATOR TEST			Tolerance cm3/1000 strokes Check tolerance cm3/1000s.	: + 2.0 : + 5.0
SETTING		$\frac{1}{1}$	Aneroid pressure	
Rated speed rpm Pressure hPa rack travel mam Tolerance mam	: 500 : 1000 : 13.00 : ← 0.05		hPa Rated speed rpm Del. quantity cm3/1000 strokes	
Rated speed rpm		<u>†</u>	Tolerance cm3/1000 strokes	
Pressure hPa	: -	<del>-</del>	Check tolerance cm3/1000s.	: + 5.0
MEASUREMENT		Ŧ	CIID/ 10003.	. +- 5.0
Rated speed rpm	: 500	Ŧ	Aneroid pressure	_
Pressure hPa rack travel mm Tolerance mm	: 250 : 0.49 : + 0.05	Ī	Rated speed rpm Del. quantity cm3/1000 strokes	
Pressure hPa	: 500	‡	Tolerance cm3/1000 strokes	
rack travel mma Tolerance mma	: 1.70 : + 0.10		Check tolerance cm3/1000s. Spreed Tolerance	: +- 4.0
Start interlock		Ŧ	cm3/1000 strokes Check tolerance	: 4.0
Rated speed rpm Rated speed rpm		Ī	cm3/1000s.	: 7.5
Check speed 1/min	: > 80	‡	STARTING FUEL DEL	IVERY
Check speed 1/min	: < 220	‡	Rated speed rpm	
		‡	rack travel mm Tolerance mm	: 20.00 : +- 1.00
FUEL DELIVERY CHA	ARACTERISTICS	‡	Del. quantity cm3/1000 strokes	
Aneroid pressure	. 1000	‡	Tolerance cm3/1000 strokes Check tolerance	: + 10.0
hPa Rated speed rpm Del. quantity	: 1000 : 600	Ī	cm3/1000s.	: +- 14.0
cm3/1000 strokes	: 90.0	Ţ		

## LOW TILE

300 Rated speed rpm 5.60 Rack travel in mm : : **←** 0.20 Tolerance mm Del. quantity cm3/1000 strokes : 10.0 Tolerance cm3/1000 strokes : +-2.5 Check tolerance cm3/1000s. 5.0 Spreed Tolerance cm3/1000 strokes: 4.5 Check tolerance cm3/1000s. 7.5

#### Note remarks

Refer to Service Info for test and adjustment instructions. See microcard(s) W400/...

Edition : 19.01.98 : ISO 4113 Test oil

Combination No. : F 000 409 102

Injection pump

Pump designation : PES6P120A720LS7257

: -11

EP type number : F 000 400 201

Governor

Governer design. : RQV300...950PA1242

Governer no. : 9 420 080 387

Cust. part No. : 0280743302

Customer-spec. information Customer : 768

: OM 447LA Euro II Motor

Power KW : 264.8

#### TEST BENCH REQUIREMENTS

Inlet line : 4.1

Test oil inlet

temp. "C 40 Tolerance °C

Overflow valve : 1 417 413 047

Inlet press. bar : 2.3

Test nozzle holde

: 1 688 901 105 assembly

Opening pressure

208.5 bar : **←** 1.5 Tolerance bar

Test lines : 1 680 750 075

Outside diameter: 8.0

x inside diameter: 3.0 x length mm : 1000

REMARKS

(A) INJECTION PUMP SETTING VALUES

Set equal delivery quant.

per values \_\_\_\_\_

BEGINNING OF DELIVERY

Test pressure bar : 26.0 Tolerance bar : ← 1.0

Prestroke mm 4.70

Tolerance mm : **←** 0.05

Check

tolerance mm : + 0.10

Rack travel in mm: 21.00

: 6-2-4-1-5-Firing order

: 3

: 0-60-120-180-240 Phasing

: -300

: + - 0.50Tolerance

Check

tolerance \*NW : + 0.75

BASIC SETTING

550 Rated speed rpm :

Rack travel in mm: 13.40

: **←** 0.05 Tolerance mm

Del. quantity

cm3/1000 strokes : 277.5

Tolerance

cm3/1000 strokes :  $\leftarrow$  1.0

Check tolerance

cm3/1000s.

: +- 4.0

Spreed

Tolerance cm3/1000 strokes : 5.0	control lever position degree : - 1
Check tolerance cm3/1000s. 9.0	Rated speed rpm : 1120
	Rack travel in mm: 16.50 Tolerance mm: + 1.30
Rated speed rpm : 300	FULL LOAD DELIVERY AT FULL LOAD STOP
Rack travel in mm: 5.00	TOLK FOUND PEETVENT AT TOLK FOUND OTOL
Tolerance mm : + 0.10	Rated speed rpm : 550
Del. quantity	+ Aneroid pressure
cm3/1000 strokes : 7.5	hPa : 1300
Tolerance	Del. quantity
cm3/1000 strokes : + 3.0	+ cm3/1000 strokes : 277.5
Check tolerance	+ Tolerance
cm3/1000s. : +- 6.0 Spreed	+ cm3/1000 strokes : + 1.0 + Check tolerance
Tolerance	+ cm3/1000s. : +- 4.0
cm3/1000 strokes : 8.0	Spreed
Check tolerance	+ Tolerance
cm3/1000s. : 12.0	+ cm3/1000 strokes : 5.0
	† Check tolerance
	+ cm3/1000s. : 9.0
(B) SETTING OF INJECTION PUMP WITH GOVERNOR	<u> </u>
	- CONTROL LEVER
GUIDE SLEEVE TRAVEL	<del>†</del>
700	+ control lever
Rated speed rpm : 700	<pre>position degree : 115.0 tolerance degree : + 4.0</pre>
guide sleeve travel mm : 4.55	T toterance degree : - 4.0
Tolerance mm : +- 0.25	ATED SPEED
TOCCI GRIDE INCH	+ rack travel mm : 12.10
Rated speed rpm : 1050	+ Rated speed rpm : 1025
guide sleeve	† Tolerance 1/min : + 5
travel mm : 7.70	†
Tolerance mm : + 0.10	rack travel mm : 4.00
Rated speed rpm : 300	Rated speed rpm : 1135 Tolerance 1/min : +- 15
Rated speed rpm : 300 guide sleeve	T total attachming to the
travel ma : 0.75	rack travel mm : 0.50
Tolerance mm : + 0.25	+ Tolerance mm : + 0.50
	- Rated speed rpm : 1230
Rated speed rpm : 500	+
guide sleeve	+
travel mm : 3.45	†
Tolerance mm : + 0.25	LOW IDLE
Rated speed rpm : 1165	I TOM INTE
guide sleeve	I
travel ma : 9.55	control lever
Tolerance mm : + 0.25	position degree : 78.0
	tolerance degree : + 4.0
	_ +
GUIDE SLEEVE POSITION	+ Setting point w/out bumper spring

Rated speed rpm :

100

Speed rpm : 300		. 0.00	† Rated speed rpm	: < 22
Speed rpm : 300   Speed 1/min : < 244		: > 8.00		
Speed rpm : 300   Speed 1/min : < 244	ng:			: > 80
Travel man   1	speed rpm	: 300		: < 240
Speed rpm : 325	ravel mm	: 5.00	+	
### PUBL DELIVERY CHARACTERISTIC    Aneroid pressure   hPa	e ma	: <b>←</b> 0.10	+	
Aneroid pressure hPa : 1300 Red prm : 550 weed rpm : 4 0.05  weed rpm : 950 weed rpm : 950 weed rpm : 950 weed rpm : 950 weed rpm : 750 re mm : + 0.05  weed rpm : 750  weed rpm : 750  re mm : + 0.05  Aneroid pressure follows trokes : 255.1  Tolerance cm3/1000 strokes : + 2.1  Check tolerance cm3/1000 strokes : 8.1  Check tolerance cm3/1000s. : + 5.1  Spreed Tolerance cm3/1000s. : + 5.1  Aneroid pressure follows trokes : 8.1  Check tolerance cm3/1000s. : + 10.0  Aneroid pressure follows trokes : 8.1  Check tolerance cm3/1000s. : + 10.0  Aneroid pressure follows trokes : 8.1  Check tolerance cm3/1000s trokes : 268.  Tolerance cm3/1000 strokes : 268.  Tolerance cm3/1000 strokes : 4.0  Spreed Tolerance cm3/1000 strokes : 4.0  Tolerance cm3/1000s trokes : 140.  Tolerance cm3/1000s trokes : 140.  Tolerance cm3/1000s trokes : 140.  Tolerance cm3/1000s trokes : 5.0  Tolerance cm3/1000s trokes : 5.0  Check tolerance cm3/1000s trokes : 5.0  C			+ FUEL DELIVERY C	CHARACTERISTIC
DONTROL   peed rpm   13.40   pet   peed rpm   13.40   pet   peed rpm   13.40   pet   quantity   pet   peed rpm   13.40   pet   quantity   pet   peed rpm   13.20   ce mm   13.20   ce mm   13.20   ce mm   13.40   ce mm   13.25   ce mm   13.25   ce mm   13.25   ce mm   13.25   ce mm   13.40   spreed   cm3/1000 strokes   268. Tolerance   cm3/1000 stroke	peed rpm	: 325	<u> </u>	
Peed rpm   : 550   Rated speed rpm   : 950   avel mm   : 13.40   Del. quantity   Cm3/1000 strokes : 255.4   Tolerance   Cm3/1000 strokes : 255.4   Tolerance   Cm3/1000 strokes : 4   2.4   Cm3/1000 strokes : 8.4   Cm3/1000 strokes : 4   Cm3/1000 strokes : 8.4   Cm3/1000 strokes : 4   Cm3/1000 strokes : 5   Cm3/100				·e
Del. quantity   Cm3/1000 strokes   255.0				
Compared	speed rpm	: 550		
Tolerance	avel mm	: 13.40	† Del. quantity	
Deed rpm   1   950	ce ma	: <del>+-</del> 0.05		es : 255.0
Check tolerance   Cm3/1000s.   Check tolerance   Cm3/100s.   Che		. 050		s + 1 2 0
Cee mm	hear tha	. 75U . 17.20		
Speed rpm : 750	avel man	13.20	t uneck tolerance	; . <u></u>
Tolerance	Ce im	: 0.05	cms/1000s.	: +- 5.0
13.40	need are	. 750		
Check tolerance   Cm3/1000s.   12.1	specu rym	. 13./0		
cm3/1000s. : 12.0   cm3/1000s. : 12.0   cm3/1000s. : 12.0   cm3/1000s. : 12.0   cm3/1000s. : 13.00   cm3/1000s.	GVEL INTO	15.40		
Speed rpm : 900   13.25	ice uni	0.05	the sk tolerance	. 12 A
hPa		. ann	T cm3/1000s.	. 12.0
hPa	speed rpm	17 25		
hPa	aver man	13.63	Amenada nassaa	
Rated speed rpm : 750   rack travel mm : 13.4   Tolerance mm : + 0.0   Del. quantity   cm3/1000 strokes : 268.   Tolerance cm3/1000 strokes : + 2.0   Check tolerance cm3/1000s.   : + 5.0   Spreed   Tolerance cm3/1000s.   : + 5.0   Check tolerance cm3	CC IMB	: 0.05		''' 4700
				1,500
Tolerance mm : → 0.0  Del. quantity cm3/1000 strokes : 268.  Tolerance cm3/1000 strokes : 2.0  Deed rpm : 500 e hPa : 1300 avel mm : → 0.05  Deed rpm : 500 ce nm : → 0.05  MENT  Aneroid pressure hPa : - cm3/1000 strokes : 8. Check tolerance cm3/1000s. : → 12.  MENT  Aneroid pressure hPa : - Rated speed rpm : 500 e hPa : 800 avel mm : → 0.15 e hPa : 550 avel mm : → 0.15  e hPa : 550 avel mm : → 0.10  Tolerance cm3/1000 strokes : 140. Tolerance cm3/1000 strokes : + 1. Check tolerance cm3/1000 strokes : + 1. Check tolerance cm3/1000 strokes : + 5. Tolerance cm3/1000 strokes : + 5. Tolerance cm3/1000 strokes : + 5. Check tolerance cm3/1000 strokes : 5.	/41 333115		+ Rated speed rpm	1 700
Del. quantity cm3/1000 strokes : 268.  Tolerance cm3/1000 strokes : 4.  Check tolerance cm3/1000s. : + 5.  Spreed ce mm : 4.  Del. quantity cm3/1000 strokes : 268.  Tolerance cm3/1000s. : + 5.  Spreed Tolerance cm3/1000 strokes : 8.  Check tolerance cm3/1000s. : 12.  MENT  Aneroid pressure hPa : 600 hPa : 600 peed rpm : 500 hPa : 600 peed rpm : 2.40 ce mm : + 0.15  Tolerance cm3/1000 strokes : 140.  Tolerance cm3/1000 strokes : 4.  Check tolerance cm3/1000 strokes : + 1.  Check tolerance cm3/1000 strokes : + 4.  Spreed Tolerance cm3/1000 strokes : 5.  Check tolerance cm3/1000 strokes : 5.				
cm3/1000 strokes : 268.   Tolerance   cm3/1000 strokes : 268.   Tolerance   cm3/1000 strokes : + 2.   Check tolerance   cm3/1000s.   : + 5.   Spreed   Tolerance   cm3/1000 strokes : 8.   Check tolerance   cm3/1000 strokes : 8.   Check tolerance   cm3/1000s.   : 12.   Check tolerance   cm3/1000s.   : 12.   Check tolerance   cm3/1000s.   : 12.   Check tolerance   cm3/1000s.   : 140.   Check tolerance   cm3/1000 strokes : 140.   Check tolerance   cm3/1000s.   : + 4.   Check tolerance   cm3/1000s.   : + 4.   Check tolerance   cm3/1000s.   : 5.   Check tolerance   cm3/1000 strokes : 5.   Check tolerance   cm3/1000 strokes : 5.   Check tolerance   cm3/1000 strokes : 5.   Check tolerance   cm3/1000s.   : 9.   Ch	ATOR TEST			
Tolerance   cm3/1000 strokes : + 2.0   Check tolerance   cm3/1000s.   : + 5.0   Check tolerance   cm3/1000s.   : + 5.0   Spreed   Tolerance   cm3/1000 strokes   : + 5.0   Check tolerance   cm3/1000 strokes   : -   Check tolerance   cm3/1000s.   : 12.0   Check tolerance   cm3/1000s.   : 12.0   Check tolerance   cm3/1000 strokes   : 140.0   Check tolerance   cm3/1000 strokes   : 140.0   Check tolerance   cm3/1000 strokes   : + 1.0   Check tolerance   cm3/1000 strokes   : + 4.0   Check tolerance   cm3/1000 strokes   : 5.0   Check tolerance   cm3/1000s.   : 9.0   Check tolerance   cm3/1000s.   :			+ Del. quantity	242 7
cm3/1000 strokes : + 2.   cm3/1000 strokes : + 2.   cm3/1000s.   : + 5.   cm3/1000 strokes   : - 5.   cm3/1000 strokes   : - 6.   cm3/1000s.   : - 6.   cm3/1000 strokes   : - 6.   cm3/1000 strokes   : - 6.   cm3/1000 strokes   : - 6.   cm3/1000s.   : - 6.   cm3/				es : 268.5
Speed rpm   1300   Check tolerance   cm3/1000s.   15.5   cm3/1000s.   15.5   cm3/1000s.   15.5   cm3/1000s.   15.5   cm3/1000 strokes   15.5   cm3/1000 strokes   15.5   cm3/1000s.   15	j			
re hPa : 1300 ravel mm : 13.40 hce nm : 4				
re hPa : 1300 ravel mm : 13.40 spreed fince mm : ← C.05  speed rpm : 500  cm3/1000 strokes : 8.  Check tolerance cm3/1000s. : 12.  EMENT  Aneroid pressure hPa : −  Rated speed rpm : 500  re hPa : 800 re hPa : 800 re hPa : 2.40 ravel mm : ∠.40 fince mm : ← 0.15  re hPa : 550 re hPa : 500 re	speed rpm	: 500	+ Check tolerance	
Tolerance cm3/1000 strokes : 8. speed rpm : 500  Check tolerance cm3/1000s. : 12.  CMENT  Aneroid pressure hPa : Rated speed rpm : 500  Pe hPa : 800 Pel. quantity cm3/1000 strokes : 140. Tolerance cm3/1000 strokes : 140. Tolerance cm3/1000 strokes : + 1. Check tolerance cm3/1000s. : + 4. Spreed Tolerance cm3/1000s. : 5. Check tolerance cm3/1000 strokes : 5. Check tolerance cm3/1000 strokes : 5. Check tolerance cm3/1000s. : 9.	re hPa	: 1300		: <del>←</del> 5.0
cm3/1000 strokes : 8.   check tolerance   cm3/1000s. : 12.   cm3/100s.   cm3/100s. : 12.   cm3/100s.   cm3/100s.   cm3/100s.   cm3/100s.   cm3/100s.   cm3/100s.   cm3/100s.   cm3/100s.   cm3/100s.   cm3			+ Spreed	
Check tolerance   Cm3/1000s.   12.	ice film	: ← C.C5	† Tolerance	
##ENT  ##				
### Cm3/1000s. : 12.  ###################################	speed rpm	: 500	+ Check tolerance	•
Aneroid pressure hPa : 500  re hPa : 800 pel. quantity ravel mm : 2.40 nce mm : + 0.15  re hPa : 550 re hPa : 550 re hPa : 550 re may : 1.00 nce mm : + 0.10  re hPa : 550 re m3/1000 strokes : + 1.  Tolerance rm3/1000s. : + 4.  Tolerance rm3/1000 strokes : 5.  Check tolerance rm3/1000s. : 9.	re hPa	: -	+ cm3/1000s.	: 12.0
Aneroid pressure hPa : 500  re hPa : 800 pel. quantity ravel mm : 2.40 nce mm : + 0.15  re hPa : 550 re hPa : 550 re hPa : 550 re m3/1000 strokes : + 1. Check tolerance cm3/1000s. : + 4. Spreed Tolerance cm3/1000 strokes : 5. Check tolerance cm3/1000 strokes : 5. Check tolerance cm3/1000s. : 9.	FMENT		İ	
speed rpm       : 500         re hPa       : 800         ravel mm       : 2.40         nce mm       : + 0.15         re hPa       : 550         ravel mm       : 1.00         ravel mm       : + 0.10         ravel mm <td< td=""><td></td><td></td><td></td><td>re</td></td<>				re
Rated speed rpm : 500   Del. quantity   cravel mm : 2.40   cm3/1000 strokes : 140.   Tolerance   cm3/1000 strokes : + 1.   Check tolerance   cm3/1000s.   : + 4.   Spreed   Tolerance   cm3/1000 strokes : 5.   Check tolerance   cm3/1000 strokes : 5.   Check tolerance   cm3/1000s.   : 5.   Check to	speed rpm	: 500		
Del. quantity   Cm3/1000 strokes : 140.   Tolerance   Cm3/1000 strokes : 140.   Tolerance   Cm3/1000 strokes : + 1.   Check tolerance   Cm3/1000s.   Cm3/1000s.   Cm3/1000s.   Cm3/1000s.   Cm3/1000s.   Cm3/1000 strokes : 5.   Check tolerance   Cm3/1000s.   Check tolerance   Cm3/1000s.   Check tolerance   Cm3/1000s.   Check tolerance   Cm3/1000s.   Cm3/1				
ravel mm : 2.40	re hPa	: 800	+ Del. quantity	
Tolerance   Tolerance   Cm3/1000 strokes : + 1.   Tolerance   Cm3/1000 strokes : + 1.   Tolerance   Cm3/1000 strokes : + 1.   Tolerance   Cm3/1000s.   Cm3/1000s.   Cm3/1000s.   Cm3/1000 strokes : 5.   Check tolerance   Cm3/1000s.   Check tolerance   Cm3/1000s.	ravel mm	: 2.40	+ cm3/1000 stroke	es : 140.5
	nce mm	: <b>←</b> 0.15		
Check tolerance   cm3/1000s.   : + 4.			+ cm3/1000 stroke	es : + 1.0
Spreed	e hPa	: 550	+ Check tolerance	•
Spreed	ravel mm	1.00	+ cm3/1000s.	· + 4.0
	nce m	: + 0.10	Spreed	. ,,,,
	100 100			
interlock Check tolerance cm3/1000s. : 9.				es : 5.0
+ cm3/1000s. : 9.	interlack	·_ · · ·		
	HILEFTOCK			
реестри т		. \ 100	T (m3/10003.	. 7.0
·	speed rpm	: > 100	Ť	

F13

### STARTING FUEL DELIVERY

100 Rated speed rpm :

Del. quantity

cm3/1000 strokes : 248.5

Tolerance

cm3/1000 strokes : + 10.0

Check tolerance

cm3/1000s. : +- 14.0

## LOW IDLE

Rated speed rpm : 300

5.00 Rack travel in mm : : **←** 0.10 Tolerance mm

Del. quantity

7.5 cm3/1000 strokes :

Tolerance

cm3/1000 strokes : +-3.0

Check tolerance

cm3/1000s. 6.0

Spreed

Tolerance

cm3/1000 strokes : 8.0

Check tolerance cm3/1000s. 12.0

#### Note remarks

Refer to Service Info for test and adjustment instructions. See microcard(s) W400/...

: 30.01.98 Edition : ISO 4113 Test oil

Combination No. : F 000 409 888

Injection pump

Pump designation : PES5P120A

EP type number : 0

Governor

Governer design. : RQV300...950

Governer no. : 0

Cust. part No.

Customer-spec. information Customer : MBB

### TEST BENCH REQUIREMENTS

Inlet line : 4.1

Test oil inlet

temp. °C Tolerance °C : +- 2.0

Overflow valve : 1 417 413 047

Inlet press. bar : 2.3

Test nozzle holde

: 1 688 901 105 assembly

Opening pressure

: 208.5 bar Tolerance bar : **←** 1.5

Test Lines : 1 680 750 075

Outside diameter: 8.0

x inside diameter: 3.0 x length mm : 1000

REMARKS

(A) INJECTION PUMP SETTING VALUES Set equal delivery quant.

per values \_\_\_\_\_

BEGINNING OF DELIVERY

Test pressure bar : 26.0 Tolerance bar : + 1.0

Prestroke mm : 4.70 Tolerance mm : **←** 0.05 Check

tolerance mm : + 0.10

Rack travel in mm: 21.00

Firing order : 1-3-5-4-2

Phasing : 0-72-144-216-288

Tolerance : +- 0.50

Check

tolerance \*NW : + 0.75

BASIC SETTING

Rated speed rpm : 950

13.55 Rack travel in mm: Tolerance mm : +- 0.05

Del. quantity cm3/1000 strokes : 271.0

Tolerance

cm3/1000 strokes :  $\leftarrow$  1.0

Check tolerance

cm3/1000s. : +- 4.0

Spreed

Tolerance

cm3/1000 strokes : 5.0

Check tolerance

cm3/1000s.

9.0

		+
Rated speed rpm	: 300	Ī
Rack travel in m		Ŧ
Tolerance am Del. quantity	: <b>←</b> 0.10	†
cm3/1000 strokes	: 19.5	Į
Tolerance	7.0	+
cm3/1000 strokes Check tolerance	: +- 3.0	İ
cm3/1000s.	: <b>←</b> 6.0	1
Spreed Tolerance		†
cm3/1000 strokes	: 8.0	Į
Check tolerance	42.0	+
cm3/1000s.	: 12.0	1
4-4		+
(B) SETTING OF IN	WECTION PUMP	İ
WITH GOVERNOR		+
GUIDE SLEEVE TRAN	JFI	İ
		1
Rated speed rpm guide sleeve	: 700	†
travel mm	: 5.45	Į
Tolerance mm	: <del>+-</del> 0.25	+
Rated speed rpm	: 1050	1
guide sleeve		+
travel mm	: 7.80 : +- 0.10	+
Tolerance mm	: 0.10	I
Rated speed rpm	: 300	+
guide sleeve travel mm	: 0.75	İ
Tolerance mm	: + 0.25	1
Destroy among the	: 5 <b>0</b> 0	+
Rated speed rpm guide sleeve	: 500	I
travel mm	: 3.55	+
Tolerance mm	: <b>←</b> 0.25	İ
Rated speed rpm	: 1165	Į
guide sleeve	. 0/5	+
travel mm Tolerance mm	: 9.45 : ← 0.25	İ
10 col di 10c imili		+
GUIDE SLEEVE POST	ITION	+
		1
control lever		+
position degree	: -1	+
Rated speed rpm	: 1120	1
Rack travel in m		+
Tolerance mm	: +- 1.30	+

FULL LOAD DELIVERY AT FULL LOAD STOP
Rated speed rpm : 950
Aneroid pressure
hPa : 1500 Del. quantity
cm3/1000 strokes : 271.0
Tolerance cm3/1000 strokes : +- 1.0
Check tolerance
cm3/1000s. : + 4.0
Spreed Tolerance
cm3/1000 strokes : 5.0
Check tolerance cm3/1000s. : 9.0
CHD7 10003
CONTROL LEVER
control lever position degree : 121.0
tolerance degree : + 6.0
RATED SPEED
rack travel mm : 12.55
Rated speed rpm : 1035
Tolerance 1/min : + 5
rack travel mm : 4.00
Rated speed rpm : 1140 Tolerance 1/min : +- 15
Toterance Train
rack travel mm : 0.50
Tolerance mm : + 0.50 Rated speed rpm : 1250
The special sp
LOW IDLE
control lever
position degree : 79.0 tolerance degree : + 6.0
Setting point w/out bumper spring
Rated speed rpm : 100
CRT mmm min. : > 10.00
Testing:
Rated speed rpm : 300
rack travel mm : 6.20

rolerance mm	: <b>←</b> 0.10	†		
Rated speed rpm	: 325	‡	FUEL DELIVERY CHA	RACTERISTICS
TORQUE CONTROL			Aneroid pressure	
Rated speed rpm	: 950	1	hPa	: 1500
rack travel mm		1	Rated speed rpm	550
Tolerance mm		1	Del. quantity	. ,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,
occi ai icc iai	0.05	1	cm3/1000 strokes	• 302.0
Rated speed rpm	: 550	1	Tolerance	. 502.0
naceu speeu ipin	: 13.95	Ţ	cm3/1000 strokes	20
ack travel mm olerance mm	: + 0.05	<b>T</b>	Check tolerance	2.0
oterance mm	: 0.05	Ť		: +- 5.0
	750	<b>T</b>	cm3/1000s.	; +- 5.0
ated speed rom	: 750	†	Spreed	
ack travel mm	: 13.95	. †	Tolerance	
olerance mm	: <b>←</b> 0.05	+	cm3/1000 strokes	: 8.0
		+	Check tolerance	
lated speed rpm	: 850	+	cm3/1000s.	: 12.0
ack travel mm	: 13.90	+		
olerance mm	: <b>←</b> 0.05	+	**************************************	
		1	Aneroid pressure	
			hPa	: 1500
NEROID/ALTITUDE		1	Rated speed rpm	
OMPENSATOR TEST		1	rack travel mm	13.95
or a Chonton 1501		1	Tolerance mm	
		1	Del. quantity	0.05
ETTINC		T	cm3/1000 strokes	• 20/ n
ETTING		T		. 274.0
	500	<b>T</b>	Tolerance	
ated speed rpm	: 500	; <del>-</del>	cm3/1000 strokes	: - 2.0
ressure hPa	: 1500	†	Check tolerance	
ack travel mm olerance mm	: 13.55	†	cm3/1000s.	: +- 5.0
olerance mm	: <b>←</b> 0.05	+	Spreed	
		+	Tolerance	
ated speed rpm	: 500	+	cm3/1000 strokes	: 8.0
ressure hPa	: -	+	Check tolerance	
		+	cm3/1000s.	: 12.0
EASUREMENT		+		
		+		<del></del>
ated speed rpm	: 500	+	Aneroid pressure	. 1500
	. Eno	ή	hPa	: 1500
ressure hPa	: 500	†	Rated speed rpm	: 850
ack travel mm	: 1.10	†	Del. quantity	204.2
olerance mm	: <b>←</b> 0.15	†	cm3/1000 strokes	: 286.0
	<b></b> -	†	Tolerance	
ressure hPa	: 900	+	cm3/1000 strokes	; <del></del> 2.0
ack travel mm	: 2.65	+	Check tolerance	
olerance mm	: <b>←</b> 0.10	+	cm3/1000s.	: <del>←</del> 5.0
		+	Spreed	
		<del></del> +	Tolerance	
tart interlock		+	cm3/1000 strokes	: 8.0
<del>-</del> · - ·		+	Check tolerance	
	: > 100	<del>†</del>	cm3/1000s.	: 12.0
ated speed rom		1		
		+		
Rated speed rpm Rated speed rpm		‡	<del></del>	
lated speed rpm Check	: < 210	‡	Aneroid pressure	- <del></del>
lated speed rpm		‡	hPa	; -
ated speed rpm heck	: < 210	‡		: - : 500
ated speed rpm heck peed 1/min	: < 210	† † †	hPa	

Tolerance cm3/1000 strokes	: +-	1.0
Check tolerance cm3/1000s.	• 4	4.0
Spreed	•	4.0
Tolerance cm3/1000 strokes	:	5.0
Check tolerance cm3/1000s.		9.0
CHO/ TOUCS.	•	7.0

## STARTING FUEL DELIVERY

Rated speed rpm : 100
Del. quantity
cm3/1000 strokes : 260.0
Tolerance
cm3/1000 strokes : + 10.0
Check tolerance
cm3/1000s. : + 14.0

### LOW IDLE

Rated speed rpm : 300 Rack travel in mm: 6.20 Tolerance mm : **←** 0.10 Del. quantity cm3/1000 strokes : 19.5 Tolerance 3.0 cm3/1000 strokes : +-Check tolerance cm3/1000s.6.0 Spreed Tolerance 8.0 cm3/1000 strokes : Check tolerance 12.0 cm3/1000s.

#### Note remarks

Refer to Service Info for test and adjustment instructions. See microcard(s) W400/...

Edition Test oil

: 04.02.98 : ISO 4113

Combination No. : F 002 A0Z 007

Injection pump

Pump designation : PES6A95D320/3RS2881

EP type number : 9 410 037 215

Governor

Governer design. : RSV475...1100A00881R

Governer no. : F 002 A20 207

Cust. part No. : 3928597

Customer-spec. information Customer : CUMMINS

Motor Power KW : 6BTA

: 122.0

## TEST BENCH REQUIREMENTS

Inlet line : 3.2

Test oil inlet

temp. °C

Tolerance °C

: +-2.0

Overflow valve : 2 417 413 093

Inlet press. bar :

2.0

Tolerance bar : + 0.1

Test nozzle holde

assembly

: 1 688 901 101

Opening pressure

bar

Tolerance bar

Test lines : 1 680 750 014

Outside diameter : 6.0

x inside diameter: 2.0 x Length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES

Set equal delivery quant.

per values \_\_\_\_

BEGINNING OF DELIVERY

17.0 Test pressure bar :

Tolerance bar : + 1.0

Prestroke mm : 2.85 Tolerance mm : + 0.05

Check

tolerance mm : **←** 0.10

Rack travel in mm: 10.50

Tolerance mm : + 1.50

: 1-5-3-6-2-Firing order

: 0-60-120-180-240 Phasing

: -300

: +- 0.50 Tolerance

Check

tolerance \*NW : +- 0.75

Start of delivery blocking

\*NW after s.o.d. : 8.50

: **←** 0.10 Tolerance

Check

tolerance \*NW : **←** 0.29

Barrel no. : 1

BASIC SETTING

Rated speed rpm : 1100

Rack travel in mm: 12.40

F19

Tolerance mm :	<b>←</b> 0.05	Rated speed rpm : 1100 Aneroid pressure
Del. quantity cm3/1000 strokes :	109.9	hPa : 1200 Del. quantity
	+	cm3/1000 strokes : 109.9
Tolerance cm3/1000 strokes :	+ 1.0	Tolerance cm3/1000 strokes : + 1.0
Check tolerance		Check tolerance cm3/1000s. : +- 3.0
cm3/1000s. :	<b>←</b> 3.0	Spreed Tolerance
Spreed	I	cm3/1000 strokes : 4.0
•	+	Check tolerance
Tolerance cm3/1000 strokes :	4.0	cm3/1000s. : 6.5
Check tolerance	I	
cm3/1000s. :	6.5	CONTROL LEVER
-	I	control lever
	+	position degree : 100.0
Rated speed rpm :	485	tolerance degree : +- 4.0
Rack travel in mm :	5.20	RATED SPEED
	+ 0.30	rack travel mm : 11.40
Del. quantity	1	Rated speed rpm : 1155
cm3/1000 strokes :	21.5	Tolerance 1/min : + 5
Tolerance	+	
cm3/1000 strokes :	+ 2.0 +	rack travel mm : 6.50
Check tolerance	+	Rated speed rpm : 1215 _
	+- 4.5	Tolerance 1/min : +- 5
Spr <del>ee</del> d Tolerance	Ī	rack travel mm : 0.85
cm3/1000 strokes :	6.0	Tolerance mm : +- 0.55
Check tolerance	1	Rated speed rpm : 1400
cm3/1000s. :	8.0	Maca opeca i più
	+	rack travel mm : 6.50
	+	Rated speed rpm : 1215
(B) SETTING OF INJECT WITH GOVERNOR	CTION PUMP	Tolerance 1/min : + 15
GUIDE SLEEVE POSITIO	<u>ж</u>	LOW IDLE
control lever	1	control lever
	FREE	position degree : 80.0
Rated speed rpm :	800	tolerance degree : + 4.0
Rack travel in mm:	0.50	Control lever difference
Tolerance mm :	+ 0.20	Grad : 20.0
	+	tolerance degree : + 6.0
governor spring ore-tension	‡	Setting point w/out bumper spring
click setting x :	3.00 +	
	+	Rated speed rpm : 485
		rack travel mm : 4.70
FULL LOAD DELIVERY A	- 51114 1 000 0555	Tolerance mm : + 0.10

Rated speed rpm	: 100	+	Del. quantity	
_		+	cm3/1000 strokes	: 129.0
CRT mm min.	: > 19.00	+	Tolerance	
		+	cm3/1000 strokes	
Testing:		+	Check tolerance cm3/1000s.	
	40-	+	cm3/1000s.	: <del>+</del> 4.0
Rated speed rpm	: 485	+		
rack travel mm Tolerance mm	: 5.20	+		
Tolerance mm	: <b>←</b> 0.10	+	Aneroid pressure	
	2.22	†	hPa .	:
rack travel mm		t	Rated speed rpm	: 500
Rated speed rpm		t	Del. quantity	22.5
Tolerance 1/min	: ← 30	†	cm3/1000 strokes	: 82.5
		†	Tolerance	
		<del></del> †	cm3/1000 strokes	
TORQUE CONTROL	4400	. †	Check tolerance	
Rated speed rpm	: 1100	†	cm3/1000s.	: +- 3.0
rack travel mm	: 12.40	+		
Tolerance man	: <b>←</b> 0.05	†		
	. 000	†	OTANTIALO PUEL PER	TUEDY
Rated speed rpm		†	STARTING FUEL DEL	TAEKI
rack travel mm	: 13.60	†	0-4-4	. 100
Tolerance mm	: <b>←</b> 0.20	†	Rated speed rpm	: 100 : 20.50
		ţ	rack travel mm Tolerance mm	: 20.50 : + 0.50
			loterance mm	: +- 0.50
ANEROID/ALTITUDE		†	Del. quantity	130 F
COMPENSATOR TEST		†	cm3/1000 strokes	: 120.5
		†	Tolerance	. 40.0
		†	cm3/1000 strokes	: +- 10.0
setting		. ا	Check tolerance	4.7 0
	500	†	cm3/1000s.	: +- 15.0
Rated speed rpm	: 500	+		
Pressure hPa	: 1200	†		
Rated speed rpm	: 500	Ī		
Rated Speed rpm Pressure hPa	. , ,,,,,,	<b>T</b>	LOW IDLE	
rressure nra rack travel mm	9.90	<b>T</b>	LOW IDEE	
Tolerance mm	: + 0.20	T	Rated speed rpm	: 485
lo (erarice min	. 1- 0.20	I	rated speed this	. 465
MEASUREMENT		I	Rack travel in mon	: 5.20
		<b>.</b>	Tolerance mm	: + 0.10
Rated speed rpm	: 500	1	Del. quantity	
mater opera i pril	. , , ,	1	cm3/1000 strokes	: 21.5
Pressure hPa	: 700	1	Tolerance	
rack travel mm	: 12.30	1	cm3/1000 strokes	: <del>+-</del> 2.0
Tolerance mm	: + 0.20	I	Check tolerance	
TO COLOR TOO HER		I	cm3/1000s.	: +- 4.5
Pressure hPa	: 500	I	Spreed	
rack travel mm	: 10.80	1	Tolerance	
Tolerance mm	: + 0.20	1	cm3/1000 strokes	: 6.0
1-201-01-100 1001		1	Check tolerance	
		Ţ	cm3/1000s.	: 8.0
FUEL DELIVERY CHA	ARACTERISTICS			
Aneroid pressure		+		
hPa	: 1200	1	End of test speci	fication sheet
Rated speed rpm		1		
nated speed (MII	. ••••	I		
		T		

#### Note remarks

Refer to Service Info for test and adjustment instructions. See microcard(s) W400/...

: 28.01.98 Edition Test oil : ISO 4113

Combination No. : 0 402 746 613

Injection pump

Pump designation : PES6P120A320RS7372

EP type number : 0 412 726 940

Governor

Governer design. : RQV250...1250PA1283K

: 0 421 815 516 Governer no.

Cust. part No. : 3866785

Customer—spec. information Customer : CDC Motor : 68TA Power KW : 164.0

#### TEST BENCH REQUIREMENTS

Inlet line : 3.2

Test oil inlet

temp. °C Tolerance °C : +- 2.0

Overflow valve : 2 417 413 093

Inlet press. bar : : + 0.1 Tolerance bar

Test nozzle holde

: 1 688 901 103 assembly

Opening pressure

208.5 bar Tolerance bar : +- 1.5

Test lines : 1 680 750 015

Outside diameter : 6.0

x inside diameter : 3.0 x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES

Set equal delivery quant.

per values \_\_\_\_\_

### BEGINNING OF DELIVERY

Test pressure bar: 17.0 Tolerance bar : + 1.0

Prestroke mm 4.00 : + 0.05 Tolerance mm

Check

tolerance mm : + 0.10

Rack travel in mm: 10.50 Tolerance mm : +- 1.50

: 1-5-3-6-2-Firing order

: 0-60-120-180-240 Phasing

: -300

Start of delivery blocking

\*NW after s.o.d. : 11.00 Tolerance : **←** 0.50

Check

tolerance \*NW : **←** 0.75

Barrel no. : 1

### BASIC SETTING

Rated speed rpm : 1250

Rack travel in mm: 12.05 Tolerance mm : + 0.05

Del. quantity

cm3/1000 strokes : 129.5

_	Rated speed rpm : 1860
Tolerance	guide sleeve
cm3/1000 strokes : + 1.0	travel mm : 13.50
Check tolerance	Tolerance mm : + 0.50
cm3/1000s. : +- 4.0	
	FULL LOAD DELIVERY AT FULL LOAD STOP
Spreed	+
Talarana	Rated speed rpm : 1250 Aneroid pressure
Tolerance - cm3/1000 strokes : 8.0 -	+ hPa : 900
	Del. quantity
Check tolerance	cm3/1000 strokes : 129.5
cm3/1000s. : 12.0	+ Tolerance - cm3/1000 strokes : +- 1.0
	- cm3/1000 strokes : + 1.0 - Check tolerance
	cm3/1000s. : + 4.0
Rated speed rpm : 300	Spreed
2 /0	+ Tolerance + cm3/1000 strokes : 8.0
Rack travel in mm : 7.40 Tolerance mm : + 0.20	t cm3/1000 strokes : 8.0 Check tolerance
Del. quantity	cm3/1000s. : 12.0
cm3/1000 strokes : 23.0	+
Tolerance 7.000	†
cm2/1000 strokes : ← 3.0 · · · · · · · · · · · · · · · · · · ·	CONTROL LEVER
cm3/1000s. : + 5.0	CONTINUE EEVEN
Spreed	control lever
Tolerance 5.0	position degree : 114.0
cm3/1000 strokes : 5.0	tolerance degree : + 4.0
cm3/1000s. : 8.0	RATED SPEED
	rack travel mm : 11.00
(E) CETTING OF THEFETTON DIME	Rated speed rpm : 1335 Tolerance 1/min : +- 5
(B) SETTING OF INJECTION PUMP WITH GOVERNOR	+ Toterance Timin : +- 3
WZTIT GOYDINION	rack travel mm : 4.00
	Rated speed rpm : 1500
GUIDE SLEEVE TRAVEL	Tolerance 1/min : +- 15
Rated speed rpm : 1305	rack travel mm : 0.50
guide sleeve	Tolerance mm : + 0.50
travel mm : 7.93	Rated speed rpm : 1635
Tolerance mm : + 0.15	İ
Rated speed rpm : 275	
guide steeve	
travel mm : 1.39	LOW IDLE
Tolerance mm : +- 0.20	İ
Rated speed rpm : 864	control lever
guide sleeve	position degree : 76.0
travel mm : 5.36	tolerance degree : + 4.0
Tolerance mm : + 0.25	† Control lever difference
Rated speed rpm : 480	+ Grad : 38.0
guide sleeve	tolerance degree : + 6.0
travel mm : 3.18	Carrier maint/t b
Tolerance mm : + 0.25	Setting point w/out bumper spring
	I and the second

Rated speed rpm	: 275	1
rated speed this	: 213	- 1
CRT mm min.	: > 8.20	Ŧ
Testing:		‡
0.4.4	- 700	+
Rated speed rpm		
rack travel mm Tolerance mm	· - 1.20	Ţ
i Ofer dire imm	0.20	I
Rated speed rpm	: 450	+
		Ŧ
TORQUE CONTROL	. 1250	†
Rated speed rpm rack travel mm	: 12.05	Ť
Tolerance mm	: 12.05 : + 0.05	I
- Otto Give in	0.05	1
Rated speed rpm	: 90 <b>0</b>	4.
rack travel mm	: 11.80	+
Tolerance mm	: <del>+</del> 0.10	+
Dakad amasal	. 900	+
Rated speed rpm	: 800	†
rack travel mm Tolerance mm	: + 0.10	I
. Otto consider man	0.10	1
Rated speed rpm	: 600	+
rack travel mm Tolerance mm	: 11.40	+
Tolerance mm	: <del>+</del> 0.20	+
		Ŧ
ANEROID/ALTITUDE COMPENSATOR TEST		†
		+
		Ŧ
SETTING		†
	• 1250	† + + +
Rated speed rpm		+ + + +
Rated speed rpm		† † † † † † † † † † † † † † † † † † †
Rated speed rpm Pressure hPa		† † † † † † † † † † † † † † † † † † †
Rated speed rpm Pressure hPa Rated speed rpm Pressure hPa	: 900 : 1000 : -	+++++++++
Rated speed rpm Pressure hPa Rated speed rpm Pressure hPa rack travel mm	: 900 : 1000 : - : 10.00	++++++++++
Rated speed rpm Pressure hPa Rated speed rpm Pressure hPa rack travel mm	: 900 : 1000 : -	++++++++++++
Rated speed rpm Pressure hPa Rated speed rpm Pressure hPa rack travel mm Tolerance mm	: 900 : 1000 : - : 10.00	<del>+++++++++++++</del>
Rated speed rpm Pressure hPa  Rated speed rpm Pressure hPa rack travel mm Tolerance mm	: 900 : 1000 : - : 10.00	<del>+++++++++++++++++++++++++++++++++++++</del>
SETTING  Rated speed rpm Pressure hPa  Rated speed rpm Pressure hPa rack travel mm Tolerance mm  MEASUREMENT  Rated speed rpm	: 900 : 1000 : - : 10.00 : + 0.20 : 1250	<del>+++++++++++++++++++++++++++++++++++++</del>
Rated speed rpm Pressure hPa Rated speed rpm Pressure hPa rack travel mm Tolerance mm MEASUREMENT Rated speed rpm Pressure hPa	: 900 : 1000 : - : 10.00 : +- 0.20 : 1250 : 550	+++++++++++++++++++++++++++++++++++++++
Rated speed rpm Pressure hPa Rated speed rpm Pressure hPa rack travel mm Tolerance mm MEASUREMENT Rated speed rpm Pressure hPa rack travel mm	: 900 : 1000 : - : 10.00 : + 0.20 : 1250	+++++++++++++++++++++++++++++++++++++++
Rated speed rpm Pressure hPa Rated speed rpm Pressure hPa rack travel mm Tolerance mm MEASUREMENT Rated speed rpm Pressure hPa rack travel mm Tolerance mm	: 900 : 1000 : - : 10.00 : + 0.20 : 1250 : 550 : 11.10 : + 0.20	<del>+++++++++++++++++++++++++++++++++++++</del>
Rated speed rpm Pressure hPa Rated speed rpm Pressure hPa rack travel mm Tolerance mm MEASUREMENT Rated speed rpm Pressure hPa rack travel mm Tolerance mm	: 900 : 1000 : - : 10.00 : + 0.20 : 1250 : 550 : 11.10 : + 0.20 : 265	<del>+++++++++++++++++++++++++++++++++++++</del>
Rated speed rpm Pressure hPa Rated speed rpm Pressure hPa rack travel mm Tolerance mm MEASUREMENT Rated speed rpm Pressure hPa rack travel mm Tolerance mm	: 900 : 1000 : - : 10.00 : + 0.20 : 1250 : 550 : 11.10 : + 0.20	<del></del>

	ed speed rpm ed speed rpm		
Che spe	ed 1/min	: > 80	
	ed 1/min	: < 260	
FUE	L DELIVERY CHA	RACTERISTICS	<del></del>
I Ane	eroid pressure	<del></del>	
+ hPa		: 900	
	ed speed rpm	900	
	. quantity	, , , ,	
+ cm²	/1000 strokes	: 132.0	
	erance		
	11000 strokes	: +- 3.0	
	ck tolerance	. 5.0	
	3/1000s.	: <del></del> 6.0	
	eed		
	erance		
	1/1000 strokes	: 8.0	
	ck tolerance	. 0.0	
	3/1 <b>000</b> S.	: 12.0	
I	7 10000.	. 12.0	
1			
rac	k travel mm	: 12.00	
	erarice mm	: +- 0.10	
1	crance min	6.10	
1			
1 Ane	eroid pressure		
+ hPa		: -	
	ed speed rpm	: 1000	
	. quantity	, , , , , ,	
+ cm	3/1000 strokes	: 93.5	
	erance		
	3/1000 strokes	: <del>+</del> 1.0	
1	ck tolerance	,,,,	
	5/10005.	: <del> 3.0</del>	
1	,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,		
+			
<del>+</del> —		·····	<del></del>
+ STA	ARTING FUEL DEL	.IVERY	
+			
	ted speed rpm	: 100	
	ck travel mm	: 21.00	
	erance mm	: <del>+-</del> 0.50	
	. quantity		
	3/1000 strokes	: 185.0	
	Lerance		
	3/1000 strokes	: <del>+-</del> 20.0	
	eck tolerance		
+ cm3	3/10 <b>00</b> S.	: <del>+-</del> 25.0	
+			
+			
+			
+ -	·····		
+ LON	/ IDLE		
•			

Rated speed rpm	:	•	300
Rack travel in mm Tolerance mm Del. quantity	:	+-	7.40 0.20
cm3/1000 strokes Tolerance	:		23.0
cm3/1000 strokes Check tolerance	:	+-	3.0
cm3/1000s.	:	+-	5.0
Tolerance cm3/1000 strokes	:		5.0
Check tolerance cm3/1000s.	:		8.0

#### Note remarks

Refer to Service Info for test and adjustment instructions. See microcard(s) W400/...

Edition Test oil : ISO 4113

Combination No. : 9 400 030 695

Injection pump

Pump designation : PES4A95D320/3RS2880

EP type number : 9 410 037 214

Governor

Governer design. : RSV475...1250AUC825R

Governer no. : 9 420 034 701

Cust. part No. : 3928665

Customer-spec. information : CDC Customer : 4BT3.9 Motor : 82.0 Power KW

### TEST BENCH REQUIREMENTS

Inlet line : 3.2

Test oil inlet

temp. °C 40 : +- 2.0 Tolerance °C

Overflow valve : 2 417 413 093

Inlet press. bar : 2.0

Test nozzle holde

: 1 688 901 101 assembly

Opening pressure

208.5 bar Tolerance bar

Test Lines : 1 680 750 014

Outside diameter : 6.0

x inside diameter: 2.0 600 x Length mm :

REMARKS

(A) INJECTION PUMP SETTING VALUES

Set equal delivery quant.

per values \_\_\_\_\_

## BEGINNING OF DELIVERY

17.0 Test pressure bar : Tolerance bar : + 1.0

Prestroke mm 2.45 : **←** 0.05 Tolerance mm Check

: ← 0.10 tolerance mm

Rack travel in mm: 10.50 Tolerance mm :  $\leftarrow$  1.50

Firing order : 1-3-4-2

Phasing : **0-90**-180-270

Start of delivery blocking

\*NW after s.o.d. : 8.00 Tolerance : **←** 0.50

Check

tolerance "NW : **←** 0.75

: 1 Barrel nc.

BASIC SETTING

Rated speed rpm : 1250

Rack travel in mm : 12.55 : +- 0.05 Tolerance mm

Del. quantity

cm3/1000 strokes : 106.0

	+ Check tolerance
Tolerance	+ cm3/1000s. : $+$ 3.0
cm3/1000 strokes : + 1.0	Spreed
Chis/ 1000 Strokes . 1 1.0	Tolerance
Check tolerance	+ cm3/1000 strokes : 4.0
cm3/1000S. : +- 3.0	+ Check tolerance
	+ cm3/1000s. : 6.5
Spreed	+
	1
Tolerance	
cm3/1000 strokes : 4.0	CONTROL LEVER
CHO/ 1000 SCIORES . 4.0	T CONTINUE ELVER
	Tturl lavan
Check tolerance	+ control lever
cm3/1000s. : 6.5	+ position degree : 114.0
	+ tolerance degree : +- 4.0
	+
•	+ RATED SPEED
Rated speed rpm : 475	+ rack travel mm : 11.50
	+ Rated speed rpm : 1340
Rack travel in mm: 5.80	+ Tolerance 1/min : +- 5
	T TOTAL ALIEN TO THE TANK THE
Tolerance mm : + 0.10	†
Del. quantity	+ rack travel mm : 6.80
cm3/1000 strokes : 20.5	+ Rated speed rpm : 1405
Tolerance	+ Tolerance 1/min : + 5
cm3/1000 strokes : +- 2.0	1
Check tolerance	- rack travel mm : 0.85
cm3/1000s. : +- 4.5	+ Tolerance mm : +- 0.55
Spreed	+ Rated speed rpm : 1500
Tolerance	†
cm3/1000 strokes : 5.0	+ rack travel mm : 6.80
Check tolerance	+ Rated speed rpm : 1405
cm3/1000s. : 8.0	+ Tolerance 1/min : + 15
	1
(B) SETTING OF INJECTION PUMP	1
WITH GOVERNOR	
WITH GOVERNOR	T IOU TO F
	+ LOW IDLE
	†
	†
GUIDE SLEEVE POSITION	+ control lever
	+ position degree : 87.0
	+ tolerance degree : + 4.0
control lever	1
position degree : - 3	Control lever difference
- 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1	+ Grad : 27.0
Rated speed rpm : 800	
0.00	tolerance degree : + 4.0
Rack travel in mm: 0.50	†
Tolerance mm : + 0.20	+ Setting point w/out bumper spring
	+
	+ Rated speed rpm : 475
FULL LOAD DELIVERY AT FULL LOAD STOP	+ rack travel mm : 5.30
THE BOTTO DECEMBER OF THE PORT OF OTHER	+ Tolerance mm : + 0.10
Rated speed rpm : 1250	1000 GIVE 100
	Rated speed rpm : 100
Aneroid pressure	+ Rated speed rpm : 100
hPa : 1000	T
Del. quantity	+ CRT mm min. : > 19.00
cm3/1000 strokes : 106.0	+
Tolerance	+ Testing:
cm3/1000 strokes : + 1.0	+
	I .

Rated speed rpm : 475

rack travel mm Tolerance mm	: 5.80 : ← 0.10
FORGUE CONTROL Rated speed rpm rack travel mm Folerance mm	: 1250 : 12.55 : + 0.05
Rated speed rpm	: 750
ANEROID/ALTITUDE COMPENSATOR TEST	
SETTING	
Rated speed rpm Pressure hPa	: 500 : 1600
Rated speed rpm Pressure hPa rack travel mm Tolerance mm	: -
MEASUREMENT	
Rated speed rpm	: 500
Pressure hPa rack travel mm Tolerance mm	: 600 : 12.35 : ← 0.20
Pressure hPa rack travel mm: Tolerance mm	: 460 : 11.90 : + 0.20
FUEL DELIVERY CHA	ARACTERISTICS
Aneroid pressure	_
hPa Rated speed rpm Del. quantity	500
cm3/1000 strokes Tolerance	: 80.5
cm3/1000 strokes Check tolerance cm3/1000s.	: ← 1.0 : ← 3.0

Del. quantity cm3/1000 strokes Tolerance cm3/1000 strokes Check tolerance cm3/1000s.	
LOW IDLE Rated speed rpm	: 475
Rack travel in mm Tolerance mm	
Del. quantity cm3/1000 strokes	: 20.5
Tolerance cm2/1000 strokes	: ← 2.0
Check tolerance cm3/1000s.	: <b>←</b> 4.5
Spreed Tolerance	
cm3/1000 strokes Check tolerance	÷ 6.0
STOCK COLCT OF ICC	

End of test specification sheet

cm3/1000\$. : 8.0

Rated speed rpm : 100 rack travel mm : 20.50 Tolerance mm : + 0.50

#### Note remarks

Refer to Service Info for test and adjustment instructions. See microcard(s) W400/...

: 02.02.98 Edition : ISO 4113 Test oil

Combination No. : 9 400 030 747

Injection pump

Pump designation : PES4A95D320/3RS2880 EP type number : 9 410 037 214

**Governor** 

Governer design. : RSV475...1100A0C863R

6overner no. : 9 420 034 721

Cust. part No. : 3930152

Customer-spec. information Customer : CDC : 4BT3.9 Motor Power KW : 71.0

### TEST BENCH REQUIREMENTS

Inlet line : 3.2

Test oil inlet

temp. °C 40 Tolerance °C : + 2.0

Overflow valve : 2 417 413 093

Inlet press. bar : 2.0 : +- 0.1 Tolerance bar

Test nozzle holde

: 1 688 901 101 assembly

Opening pressure

208.5 bar Tolerance bar : + 1.5

Test Lines : 1 680 750 014

Outside diameter : 6.0

x inside diameter : 2.0 x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES

Set equal delivery quant.

per values \_\_\_\_\_

## BEGINNING OF DELIVERY

17.0 Test pressure bar : Tolerance bar : + 1.0

Prestroke mm : + 2.45 : +- 0.05

Check

tolerance mm : + 0.10

Rack travel in mm: 10.50 Tolerance  $m_0$ : +- 1.50

Firing order : 1-3-4-2

: 0-90-180-270 Phasina

Start of delivery blocking

\*NW after s.o.d. : 7.50 : +- 0.50 Tolerance

Check

tolerance \*NW : ← 0.75

: 1 Barrel no.

### BASIC SETTING

Rated speed rpm : 1100

Rack travel in mm: 11.75 Tolerance mm :  $\leftarrow$  0.05

Del. quantity

cm3/1000 strokes : 100.0

601

Tolerance + 1.0 + 1.0	Tolerance cm3/1000 strokes : +- 1.0 Check tolerance
Check tolerance cm3/1000s. : + 3.0	cm3/1000s. : + 3.0 Spreed Tolerance
Spreed	cm3/1000 strokes : 4.0 Check tolerance
Tolerance cm3/1000 strokes : 4.0	cm3/1000s. : 6.5
Check tolerance cm3/1000s. : 6.5	CONTROL LEVER
Rated speed rpm : 475	control lever position degree : 99.0 tolerance degree : +- 4.0
Naced Speed (pix . 4/3	toter ance degree 4.0
Rack travel in mm: 5.70 Tolerance mm: + 0.10 Del. quantity cm3/1000 strokes: 21.5	RATED SPEED rack travel mm : 10.75 Rated speed rpm : 1170 Tolerance 1/min : +- 5
Tolerance	
cm3/1000 strokes : + 2.0 + Check tolerance +	rack travel mm : 6.00 Rated speed rpm : 1240
cm3/1000s. : +- 4.5	Tolerance 1/min : +- 5
Spreed	
Tolerance + cm3/1000 strokes : 6.0 +	rack travel mm : 0.85 Tolerance mm : +- 0.55
Check tolerance	Rated speed rpm : 1375
cm3/1000s. : 8.0	•
†	rack travel mm : 6.00 Rated speed rpm : 1240
(B) SETTING OF INJECTION PUMP WITH GOVERNOR	Tolerance 1/min : +- 15
GUIDE SLEEVE POSITION	LOW IDLE
GOIDE SEELVE POSITION	LOW TOLL
	control loven
control lever position degree : -3	control lever position degree : 87.0
Rated speed rpm : 800	tolerance degree : +- 4.0
Rack travel in mm: 0.50 Tolerance mm: + 0.20	Control lever difference Grad : 12.0 tolerance degree : + 4.0
governor spring	
pre-tension + 4.25 +	Setting point w/out bumper spring
T	Rated speed rpm : 475
	rack travel mm : 5.20
FULL LOAD DELIVERY AT FULL LOAD STOP	Tolerance mm : +- 0.10
Rated speed rpm : 1100 Aneroid pressure	Rated speed rpm : 100
hPa : 1000	CRT mm min. :> 19.00
Del. quantity cm3/1000 strokes : 100.0	Testing:

Rated speed rpm : 475 rack travel mm : 5.70 Tolerance am : + 0.10TORQUE CONTROL Rated speed rpm : 1100 rack travel mm : 11.75 Tolerance mm : **←** 0.05 Rated speed rpm : 750 rack travel mm : 12.75 Tolerance mm : + 0.10 ANEROID/ALTITUDE COMPENSATOR TEST SETTING Rated speed rpm : 750 Pressure hPa : 1000 750 Rated speed rpm Pressure hPa rack travel mm 11.00 Tolerance mm : + 0.10**MEASUREMENT** 750 Rated speed rpm : 600 Pressure hPa rack travel mm 12.70 : + 0.20 Tolerance mm : 410 Pressure hPa rack travel mm : 11.80 : + 0.20Tolerance mm FUEL DELIVERY CHARACTERISTICS Aneroid pressure 1000 hPa Rated speed rpm : 750 Del. quantity cm3/1000 strokes : 110.5 Tolerance cm3/1000 strokes : + 2.0 Check tolerance cm3/1000s. : +- 4.0

Rated speed rpm : 750
Del. quantity
cm3/1000 strokes : 86.5
Tolerance
cm3/1000 strokes : + 1.0
Check tolerance
cm3/1000s. : + 3.0

STARTING FUEL DELIVERY

Rated speed rpm : 100
rack travel mm : 20.50
Tolerance mm : + 0.50
Del. quantity
cm3/1000 strokes : 120.5
Tolerance
cm3/1000 strokes : + 10.0
Check tolerance
cm3/1000s. : + 15.0

LOW IDLE

Rated speed rpm : 475 Rack travel in mm : 5.70 Tolerance mm : ← 0.10 Del. quantity cm3/1000 strokes : 21.5 Tolerance cm3/1000 strokes :  $\leftarrow$  2.0 Check tolerance : **←** 4.5 cm3/1000s.Spreed Tolerance cm3/1000 strokes : 6.0 Check tolerance cm3/1000s. 8.0

End of test specification sheet

hPa

Aneroid pressure

#### Note remarks

Refer to Service Info for test and adjustment instructions. See microcard(s) W400/...

Edition Test oil

: 28.01.98 : ISO 4113

Combination No. : F 002 A0Z 062

Injection pump

Pump designation : PES4A95D320/3RS2927

EP type number : F 002 A10 017

**Governor** 

Governer design. : RSV475...1100A2C942R

Governer no.

: F 002 A20 243

Cust. part No. : 3930142

Customer-spec. information Customer : CDC : 4BNA3.9 Motor Power KW : 50.0

### TEST BENCH REQUIREMENTS

Inlet line : 3.2

Test oil inlet

temp. °C Tolerance °C : + 2.0

: 2 417 413 093 Overflow valve

Inlet press. bar : 2.0Tolerance bar :  $\leftarrow$  0.1

Test nozzle holde

: 1 688 901 101 assembly

Opening pressure

208.5 Tolerance bar : + 1.5

: 1 680 750 014 Test lines

Outside diameter : 6.0

G04

x inside diameter: 2.0 x length mm : 600

**REMARKS** 

(A) INJECTION PUMP SETTING VALUES

Set equal delivery quant.

per values \_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 17.0 Tolerance bar : 1.0

Prestroke mm Tolerance mm : 2.85 : + 0.05

Check

tolerance mm : + 0.10

Rack travel in mm: 10.50 : +- 1.50 Tolerance mm

Firing order : 1-3-4-2

: 0-90-180-270 Phasing

Tolerance : + 0.50

Check

tolerance \*NW : **←** 0.75

Start of delivery blocking

\*NW after s.o.d. : 7.25 Tolerance : + - 0.50

Check

tolerance \*NW : + 0.75

Barrel no. 1

BASIC SETTING

Rated speed rpm : 1100

Rack travel in mm: 9.00 Tolerance mm :  $\leftarrow$  0.05

Del. quantity cm3/1000 strokes : 81.0	- Aneroid pressure - hPa : - - Del. quantity
Tolerance cm3/1000 strokes : + 1.0	- cm3/1000 strokes : 81.0 - Tolerance
Check tolerance	- cm3/1000 strokes : + 1.0 - Check tolerance
cm3/1000s. : + 3.0	- cm3/1000s. : + 3.0 - Spreed
Spreed	- Tolerance - cm3/1000 strokes : 3.5
Tolerance cm3/1000 strokes : 3.5	- Check tolerance - cm3/1000s. : 6.0 -
Check tolerance cm3/1000s. : 6.0	- CONTROL LEVER
	- control lever
Rated speed rpm : 475	- position degree : 89.0 - tolerance degree : + 4.0
Rack travel in mm: 5.10	•
Tolerance mm : + 0.10	- RATED SPEED
Del. quantity	rack travel mm : 8.20
cm3/1000 strokes : 13.5	- Rated speed rpm : 1175 - Tolerance 1/min : +- 5
cm3/1000 strokes : + 2.0	- Toterance Main . + 3
Check tolerance	- rack travel mm : 4.00
cm3/1000s. : +- 4.5 Spreed	- Rated speed rpm : 1240
Tolerance	- rack travel mm : 0.85
cm3/1000 strokes : 3.5	Tolerance mm : + 0.55
Check tolerance	- Rated speed rpm : 1350
cm3/1000s. : 5.5	- - rack travel mm : 4.00
	Rated speed rpm : 1245
(B) SETTING OF INJECTION PUMP WITH GOVERNOR	Tolerance 1/min : + 15
GUIDE SLEEVE POSITION	LOW IDLE
and a laws	- control lever
control lever position degree : - 3	- control lever - position degree : 74.0
position degree : -3 Rated speed rpm : 800	- tolerance degree : + 4.0
Rack travel in mm: 0.50	- Control lever difference
Tolerance mm : + 0.20	- Grad : 15.0
governor spring	tolerance degree : +- 6.0
pre-tension -	Setting point w/out bumper spring
click setting x : 4.50	Detect encod num : 175
	- Rated speed rpm : 475 - rack travel mm : 4.60
FULL LOAD DELIVERY AT FULL LOAD STOP	- Tolerance mm : + 0.10
Rated speed rpm : 1100	Rated speed rpm : 100

CRT mm min. : > 19.00

Testing:

Rated speed rpm : 475
rack travel mm : 5.10
Tolerance mm : + 0.10

TORQUE CONTROL

Rated speed rpm : 1100 rack travel mm : 9.00 Tolerance mm : + 0.05

Rated speed rpm : 600 rack travel mm : 9.70 Tolerance mm : + 0.10

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure

hPa : -Rated speed rpm : 600

Del. quantity

cm3/1000 strokes : 80.0

Tolerance

cm3/1000 strokes : + 2.0

Check tolerance

cm3/1000s. : + 4.0

STARTING FUEL DELIVERY

Rated speed rpm : 100 rack travel mm : 20.50 Tolerance mm : + 0.50

Del. quantity

cm3/1000 strokes : 120.0

Tolerance

cm3/1000 strokes : + 10.0

Check tolerance

cm3/1000s. : + 15.0

LOW IDLE

Rated speed rpm : 475

Rack travel in mm: 5.10
Tolerance mm: + 0.10

Del. quantity

cm3/1000 strokes : 13.5

Tolerance

cm3/1000 strokes : + 2.0

Check tolerance

cm3/1000s. : +- 4.5

Spreed

Tolerance cm3/1000 strokes : 3.5

Check tolerance

cm3/1000s. : 5.5

#### Note remarks

Refer to Service Info for test and adjustment instructions. See microcard(s) W400/...

Edition

: 28.01.98

Test oil : ISO 4113

Combination No. : F 002 A0Z 063

Injection pump

Pump designation : PES4A95D320/3RS2927

EP type number : F 002 A10 017

Governor

Governer design. : RSV475...1100A2C943R

Governer no. : F 002 A20 244

Cust. part No. : 3931397

Customer-spec. information Customer : CDC Motor : 4BNA3.9 Power KW : 45.0

## TEST BENCH REQUIREMENTS

Inlet line : 3.2

Test oil inlet

tempo. °C : + 2.0 Tolerance °C

Overflow valve : 2 417 413 093

Inlet press. bar : 2.0 Tolerance bar : + 0.1

Test nozzle holde

: 1 688 901 101 assembly

Opening pressure

208.5 bar Tolerance bar : + 1.5

Test Lines : 1 680 750 014

Outside diameter : 6.0

x inside diameter: 2.0 x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES

Set equal delivery quant.

per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 17.0 Tolerance bar : +- 1.0

Prestroke mm : + 2.85 : **←** 0.05

Check

tolerance mm : +- 0.10

Rack travel in mm: 10.50 Tolerance mn: + 1.50

Firing order : 1-3-4-2

: 0<del>-9</del>0-180-270 : +- 0.50 Phasing

Tolerance

Check

tolerance  $^{\circ}NW$  :  $\leftarrow$  0.75

Start of delivery blocking

\*NW after s.o.d. : 7.00 Tolerance : **←** 0.50

Check

: +- 0.75 tolerance \*NW

Barrel no. : 1

BASIC SETTING

Rated speed rpm : 1100

Rack travel in mm: 8.20 Tolerance  $m_{\rm m}$  :  $\leftarrow$  0.05

Del. quantity + cm3/1000 strokes : 75.0 +	Aneroid pressure
Tolerance	Del. quantity cm3/1000 strokes : 75.0
cm3/1000 strokes : + 1.0	Tolerance cm3/1000 strokes : +- 1.0
Check tolerance cm3/1000s. : + 3.0	Check tolerance cm3/1000s. : + 3.0
Spreed	Spreed Tolerance
Tolerance	cm3/1000 strokes : 3.5 Check tolerance
cm3/1000 strokes : 3.5	cm3/1000s. : 6.0
Check tolerance cm3/1000s. : 6.0	· · · · · · · · · · · · · · · · · · ·
<del></del> ‡	CONTROL LEVER
<u> </u>	control lever
Rated speed rpm : 475	position degree : 88.0
Rack travel in mm: 4.60	tolerance degree : +- 4.0
Rack travel in mm: 4.60 + Tolerance mm: + 0.10 +	RATED SPEED
Del. quantity	rack travel mm : 7.20
cm3/1000 strokes : 13.5	Rated speed rpm : 1175
Tolerance	Tolerance 1/min : + 5
cm3/1000 strokes : +- 2.0	•
Check tolerance +	rack travel mm : 4.00
cm3/1000s. : +- 4.5	Rated speed rpm : 1215
Spreed	Tolerance 1/min: +- 5
Tolerance	
cm3/1000 strokes : 3.5 + Check tolerance	rack travel mm : 0.85 Tolerance mm : +- 0.55
cn3/1000s. : 5.5	Rated speed rpm : 1300
this/10000:	
4	rack travel mm : 4.00
(B) SETTING OF INJECTION PUMP	Rated speed rpm : 1215
WITH GOVERNOR	Tolerance 1/min : + 15
†	•
	•
GUIDE SLEEVE POSITION	
<u> </u>	· LOW IDLE ·
control lever	
position degree : - 3	control lever
Rated speed rpm : 800	position degree : 73.0
+	tolerance degree : +- 4.0
Rack travel in mm: 0.50	
Tolerance mm : + 0.20	- Control lever difference - Grad : 15.0
governor spring	tolerance degree : +- 6.0
pre-tension + click setting x : 2.75 +	Setting point w/out bumper spring
T T	
	Rated speed rpm : 475
FULL LOAD DELIVERY AT FULL LOAD STOP	rack travel mm : 4.10
1400	Tolerance mm : + 0.10
Rated speed rpm : 1100	- Rated speed rpm : 100
+	- Rated speed rpm : 100

CRT mas min. : > 19.00

Testing:

475 Rated speed rpm rack travel mm 4.60 Tolerance mm : + 0.10

TORQUE CONTROL

Rated speed rpm : 1100 8.20 rack travel mm Tolerance mm : +- 0.05

600 Rated speed rpm rack travel mm 9.20 : + 0.10Tolerance am

### FUEL DELIVERY CHARACTERISTICS

Aneroid pressure

hPa Rated speed rpm : 600 Del. quantity

cm3/1000 strokes : 69.5 Tolerance

cm3/1000 strokes : +-

Check tolerance

cm3/1000s. : +- 4.0

## STARTING FUEL DELIVERY

Rated speed rpm : 100 rack travel mm 20.50 : ← 0.50 Tolerance mm Del. quantity

cm3/1000 strokes : 120.0

Tolerance

cm3/1000 strokes : + 10.0

Check tolerance

: **←** 15.0 cm3/1000s.

## LOW IDLE

Rated speed rpm : 475

4.60 Rack travel in mm: Tolerance mm : **←** 0.10

Del. quantity

cm3/1000 strokes : 13.5

Tolerance

cm3/1000 strokes : +-2.0

Check tolerance

cm3/1000s. 4.5

Spreed

Tolerance

cm3/1000 strokes : 3.5

Check tolerance

cm3/1000s. 5.5

#### Note remarks

Refer to Service Info for test and adjustment instructions. See microcard(s) W400/...

Edition Test oil

: 28.01.98 : ISO 4113

Combination No. : F 002 A0Z 064

Injection pump

Pump designation : PES4A95D320/3RS2927 EP type number : F 002 A10 017

Governor

Governer design. : RSV475...1000A2C944R

Governer no. : F 002 A20 245

Cust. part No. : 3933090

Customer-spec. information Customer : CDC : 4BNA3.9 Motor

: 40.0 Power KW

## TEST BENCH REQUIREMENTS

Inlet line : 3.2

Test oil inlet

temo. °C Tolerance °C : + 2.0

Overflow valve : 2 417 413 093

Inlet press. bar : 2.0 Tolerance bar : + 0.1

Test nozzle holde

: 1 688 901 101 assembly

Opening pressure

208.5 Tolerance bar **:** + 1.5

Test Lines : 1 680 750 014

Outside diameter : 6.0

x inside diameter: 2.0 x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES

Set equal delivery quant.

per values \_\_\_\_\_

# BEGINNING OF DELIVERY

Test pressure bar: 17.0 Tolerance bar : +- 1.0

Prestroke mm : 2.85
Tolerance mm : + 0.05

Check

: +- 0.10 tolerance mm

Rack travel in mm: 10.50 Tolerance mm : + 1.50

Firing order : 1-3-4-2

: 0<del>-90-</del>180-270 : +- 0.50 Phasing

Tolerance

Check

tolerance \*NW : + 0.75

Start of delivery blocking

\*NW after s.o.d. : 6.50

: +- 0.50 Tolerance

Check

tolerance \*NW : **←** 0.75

Barrel no. : 1

#### BASIC SETTING

Rated speed rpm : 1000

Rack travel in mm: 8.05 Tolerance mm :  $\leftarrow$  0.05

G10

Del. quantity cm3/1000 strokes : 70.5	Aneroid pressure hPa : - Del. quantity
Tolerance cm3/1000 strokes : + 1.0	cm3/1000 strokes : 70.5 Tolerance
Check tolerance cm3/1000s. : + 3.0	<pre>cm3/1000 strokes : +- 1.0 Check tolerance cm3/1000s. : +- 3.0</pre>
Spreed	Spreed Tolerance
Tolerance + Tolera	cm3/1000 strokes : 3.5 Check tolerance cm3/1000s. : 6.0
Check tolerance cm3/1000s. : 6.0	
	CONTROL LEVER
Rated speed rpm : 475	control lever position degree : 87.0 tolerance degree : +- 4.0
Pack travel in mm: 4.75 Tolerance mm: : + 0.10	RATED SPEED
Del. quantity cm3/1000 strokes : 13.5	rack travel mm : 7.00 Rated speed rpm : 1070
Tolerance cm3/1000 strokes : + 2.0	Tolerance 1/min : +- 5
Check tolerance cm3/1000s. : + 4.5 Spreed	rack travel mm : 4.00 Rated speed rpm : 1090 Tolerance 1/min : +- 5
Tolerance cm3/1000 strokes : 3.5 Check tolerance	rack travel mm : 0.85 Tolerance mm : +- 0.55
cm3/1000s. : 5.5	Rated speed rpm : 1175
(B) SETTING OF INJECTION PUMP WITH GOVERNOR	rack travel mm : 4.00 Rated speed rpm : 1050 Tolerance 1/min : +- 15
GUIDE SLEEVE POSITION	
	LOW IDLE
control lever position degree : - 3 Rated speed rpm : 800	control lever position degree : 69.0 tolerance degree : + 4.0
Rack travel in mm : 0.50 Tolerance mm : + 0.20	Control lever difference Grad: 18.0
governor spring pre-tension	tolerance degree : + 6.0
click setting x : 3.75	Setting point w/out bumper spring
FULL LOAD DELIVERY AT FULL LOAD STOP	Rated speed rpm : 475 rack travel mm : 4.25 Tolerance mm : + 0.10
Rated speed rpm : 1000	Rated speed rom : 100

Rated speed rpm : 100

CRT mm min. : > 19.00

Testing:

Rated speed rpm : 475 rack travel mm : 4.75 : **←** 0.10 Tolerance mm

TORQUE CONTROL

Rated speed rpm : 1000 rack travel mm : 8.05 : **←** 0.05 Tolerance mm

Rated speed rpm : 600 rack travel mm : 9.15 : + 0.10 Tolerance mm

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure

Rated speed rpm : 600 Del. quantity

cm3/1000 strokes : 67.0 Tolerance

cm3/1000 strokes :  $\leftarrow$  2.0

Check tolerance

cm3/1000s. : +- 4.G

STARTING FUEL DELIVERY

Rated speed rpm : 100 20.50 : +- 0.50 Tolerance mm

Del. quantity

cm3/1000 strokes : 120.0

Tolerance

cm3/1000 strokes : + 10.0

Check tolerance

cm3/1000s. : +- 15.0

LOW IDLE

Rated speed rpm : 475

Rack travel in mm: 4.75 Tolerance  $m_0$ :  $\leftarrow$  0.10

Del. quantity

cm3/1000 strokes : 13.5

Tolerance

cm3/1000 strokes : +- 2.0

Check tolerance

cm3/1000s. : **←** 4.5

Spreed Tolerance

cm3/1000 strokes : 3.5

Check tolerance

cm3/1000s. : 5.5

#### Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 02.02.98 Test oil : ISO 4113

Combination No. : F 002 A0Z 069

Injection pump

Pump designation : PES6A95D320/3RS2881

EP type number : 9 410 037 215

**Governor** 

Governer design. : RSV500...1100A2c947R

6overner no. : F 002 A20 248

Cust. part No. : 3933623

Customer—spec. information Customer : CDC Motor : 6BTA Power KW : 125.0

## TEST BENCH REQUIREMENTS

Inlet line : 3.2

Test oil inlet

temp. \*C : 40 Tolerance \*C : + 2.0

Overflow valve : 2 417 413 093

Inlet press. bar : 2.0 Tolerance bar : + 0.1

Test nozzle holde

assembly : 1 688 901 101

Opening pressure

bar : 208.5 Tolerance bar : +- 1.5

Test Lines : 1 680 750 014

Outside diameter : 6.0

x inside diameter: 2.0 x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES

Set equal delivery quant.

per values \_\_\_\_\_

# BEGINNING OF DELIVERY

Test pressure bar : 17.0 Tolerance bar : + 1.0

Prestroke mm : 2.85
Tolerance mm : + 0.05
Check

tolerance mm : + 0.10

Rack travel in mm : 10.50 Tolerance mm : + 1.50

Firing order : 1-5-3-6-2-

: 4

Phasing : 0-60-120-180-240

: -300

Start of delivery blocking

\*NW after s.o.d. : 8.50 Tolerance : 4- 0.50

Check

tolerance \*NW : + 0.75

Barrel no. : 1

BASIC SETTING

Rated speed rpm : 1100

Rack travel in mm : 13.00 Tolerance mm : + 0.05

Del. quantity cm3/1 <b>000</b> strokes : 109.5	+ Aneroid pressure + hPa : 1400
Tolerance	Del. quantity cm3/1000 strokes : 109.5 Tolerance
Check tolerance	cm3/1000 strokes : +- 1.0  Check tolerance
cm3/1000s. : + 3.0	cm3/1000s. : + 3.0 Spreed
Spreed	Tolerance cm3/1000 strokes : 3.5
Tolerance cm3/1000 strokes : 3.5	Check tolerance cm3/1000s. : 6.0
Check tolerance cm3/1000s. : 6.0	- CONTROL LEVER
	+
P.O.	+ control lever
Rated speed rpm : 500	+ position degree : 98.0
Rack travel in mm : 5.50	tolerance degree : +- 4.0
	T RATED SPEED
	+ rack travel mm : 13.00
Del. quantity cm3/1000 strokes : 21.5	1
Tolerance	† Tolerance 1/min : + 5
cm3/1000 strokes : + 2.0	Total Assess Assess Assess
Check tolerance	+ rack travel mm : 4.00
cm3/1000s. : $\leftarrow$ 4.5	Rated speed rpm : 1245
Spreed	+ Tolerance 1/min : + 5
Tolerance	+
cm3/1000 strokes : 3.5	+ rack travel mm : 0.85
Check tolerance	† Tolerance mm : ← 0.55
cm3/1000s. : 5.5	Rated speed rpm : 1400
	rack travel mm : 4.00
(B) SETTING OF INJECTION PUMP	+ Rated speed rpm : 1245
WITH GOVERNOR	Tolerance 1/min : + 15
	<u> </u>
GUIDE SLEEVE POSITION	LOW IDLE
	-
control lever	+
position degree : - 3	+ control lever
Rated speed rpm : 800	+ position degree : 78.0
	+ tolerance degree : + 4.0
Rack travel in mm : 0.50	+
Tolerance mm : + 0.20	+ Control lever difference
	+ Grad : 20.0
governor spring	+ tolerance degree : +- 6.0
pre-tension	+
click setting x : 3.50	Setting point w/out bumper spring
	Rated speed rpm : 500
FULL LOAD DELIVERY AT FULL LOAD STOP	- rack travel mm : 5.00
	+ Tolerance mm : + 0.10
Rated speed rpm : 1100	+
· · · · · · · · · · · · · · · · · · ·	+ Rated speed rpm : 100

CRT mm min. Testing: Rated speed rpm	• 50n	† † † †	Tolerance cm3/1000 strokes Check tolerance cm3/1000s.	: +- 4.0
rack travel mm Tolerance mm	: 5.50 : ← 0.10		rack travel mm Tolerance mm	: 13.80 : + 0.20
TORQUE CONTROL Rated speed rpm rack travel mm Tolerance mm	: 13.00	+	Aneroid pressure hPa Rated speed rpm Del. quantity cm3/1000 strokes	
Rated speed rpm rack travel mm Tolerance mm	: 14.65 : + 0.10	. <del> </del> + + + + + + + + + + + + + + + + + + +	Tolerance cm3/1000 strokes Check tolerance	-
Rated speed rpm rack travel mm Tolerance mm	: 13.80	†	STARTING FUEL DEL	IVERY
ANEROID/ALTITUDE COMPENSATOR TEST		† †	Rated speed rpm rack travel mm Tolerance mm Del. quantity	: 100 : 20.50 : ← 0.50
SETTING		‡	cm3/1000 strokes Tolerance	
Rated speed rpm Pressure hPa		+	cm3/1000 strokes Check tolerance	
Rated speed rpm Pressure hPa rack travel mm Tolerance mma	: 500 : - : 10.60 : + 0.20	† † †	cm3/1000s.	: ← 15.0
MEASUREMENT		Ţ	LOW IDLE Rated speed rpm	: 500
Rated speed rpm Pressure hPa rack travel mm Tolerance mm	: 500 : 800 : 13.50 : ← 0.20	† † †	Rack travel in mm Tolerance mm Del. quantity cm3/1000 strokes	: ← 0.10
Pressure hPa rack travel mm Tolerance mm	: 600 : 12.00 : +- 0.20	† † † †	Tolerance cm3/1000 strokes Check tolerance cm3/1000s. Spreed Tolerance	: + 4.5
FUEL DELIVERY CHA	RACTERISTICS		cm3/1000 strokes Check tolerance cm3/1000s.	: 3.5 : 5.5
Aneroid pressure hPa Rated speed rpm Del. quantity cm3/1000 strokes			End of test speci	fication sheet

#### Note remarks

Refer to Service Info for test and adjustment instructions. See microcard(s) W400/...

Edition : 03.02.98 Test oil : ISO 4113

Combination No. : 0 402 046 872

Injection pump

Pump designation : PES6P120A320Rs3337 EP type number : 0 412 026 779

Governor

Governer design. : RQV300...1250PA1246K

6overner no. : 0 421 815 480

Cust. part No. : CCEP 5155A 66-217

Customer-spec. information

Customer : RENAULT V.I.

Motor : MIDR 06-02-20

Power KW : 111.0

: MIDR 06-02-26 U4

# TEST BENCH REQUIREMENTS

Inlet line : 3.2

Test oil inlet

temp. °C : 40Tolerance °C :  $\leftarrow$  2.0

Overflow valve : 2 417 413 084

Inlet press. bar : 2.5 Tolerance bar : + 0.1

Overflow quantity

min. L/h : 135 Tolerance L/h : + 10.0

Test nozzle holde

: 1 688 901 101 assembly

Opening pressure

: 208.5 Tolerance bar : + 1.5 Test lines : 1 680 750 008

Outside diameter : 6.0

x inside diameter: 2.0

x length mm : 600

## REMARKS

(A) INJECTION PUMP SETTING VALUES

Set equal delivery quant.

per values \_\_\_\_

# BEGINNING OF DELIVERY

Test pressure bar : 26.0 Tolerance bar : +- 1.0

Prestroke mm : 4.10 Tolerance mm : + 0.05

Check

tolerance mm :  $\leftarrow$  0.10

Rack travel in mm : 11.00 Tolerance mm : + 0.50

Firing order : 1-5-3-6-2-

: 4

Phasing : 0-60-120-180-240

: ~300 Tolerance : +- 0.50

Check

tolerance \*NW : +- 0.75

Start of delivery mark

\*NW after s.o.d. : 0.08 Tolerance : + 0.50

Check

tolerance \*NW : +- 0.75

Barrel no. : 1

## Beginning of delivery differende

betw. rack trav.

: 21.00

and maximum rack

11.00 travel Difference \* CS : 2.00

CRT ZERO POSITION	
Rack travel in mm Tolerance mm	
BASIC SETTING	
Rated speed rpm	: 1250
Del. quantity cm3/1000 strokes	: 142.0
Tolerance cm3/1000 strokes	: + 1.0
Check tolerance cm3/1000s.	: + 4.0
Spreed	
Tolerance cm3/1000 strokes	: 5.0
Check tolerance cm3/1000s.	: 9.0
Rated speed rpm	: 300
Rack travel in mm Tolerance mm	: -5.80 : +- 0.10
Del. quantity cm3/1000 strokes	
	: <del></del> 2.0
Check tolerance cm3/1000s. Spreed	: <b>←</b> 5.0
Spiread	
Tolerance cm3/1000 strokes	: 8.0
Tolerance	: 8.0 : 12.0
Tolerance cm3/1000 strokes Check tolerance	: 12.0
Tolerance cm3/1000 strokes Check tolerance cm3/1000S. (B) SETTING OF IN	: 12.0 JECTION PUMP
Tolerance cm3/1000 strokes Check tolerance cm3/1000s.  (B) SETTING OF IN WITH GOVERNOR	: 12.0 JECTION PUMP

guide sleeve travel mm	: 300 : 1.31
Tolerance mm	: + 0.20
Rated speed rpm guide sleeve	: 900
travel mm Tolerance mm	: 6.50 : + 0.25
Rated speed rpm guide sleeve	: 530
travel mm Tolerance mm	: 3.77 : ← 0.25
Rated speed rpm guide sleeve	: 1580
travel mm Tolerance mm	: 13.50 : + 0.50
GUIDE SLEEVE POST	TION
control lever position degree Rated speed rpm	: - 1 : 1490
position degree Rated speed rpm Rack travel in mm Tolerance mm	: 10.50
position degree Rated speed rpm Rack travel in mm Tolerance mm  FULL LOAD DELIVER Rated speed rpm	: 10.50 : + 1.50 Y AT FULL LOAD STOP
position degree Rated speed rpm  Rack travel in mm Tolerance mm  FULL LOAD DELIVER Rated speed rpm Aneroid pressure hPa	: 10.50 : + 1.50 Y AT FULL LOAD STOP
position degree Rated speed rpm  Rack travel in mm Tolerance mm  FULL LOAD DELIVER Rated speed rpm Aneroid pressure hPa Tel. quantity cm3/1000 strokes	: 10.50 : + 1.50 Y AT FULL LOAD STOP
position degree Rated speed rpm  Rack travel in mm Tolerance mm  FULL LOAD DELIVER  Rated speed rpm Aneroid pressure hPa Tel. quantity cm3/1000 strokes Tolerance cm3/1000 strokes	: 10.50 : + 1.50 Y AT FULL LOAD STOP : 1250
Rated speed rpm  Rack travel in mm Tolerance mm  FULL LOAD DELIVER  Rated speed rpm Aneroid pressure hPa Tel. quantity cm3/1000 strokes Tolerance cm3/1000 strokes Check tolerance cm3/1000s.	: 10.50 : + 1.50 Y AT FULL LOAD STOP : 1250 : - : 142.0
position degree Rated speed rpm  Rack travel in mm Tolerance mm  FULL LOAD DELIVER  Rated speed rpm Aneroid pressure hPa Tel. quantity cm3/1000 strokes Tolerance cm3/1000 strokes Check tolerance cm3/1000s. Spreed Tolerance	: 10.50 : + 1.50 Y AT FULL LOAD STOP : 1250 : - : 142.0 : + 1.0 : + 4.0
Rated speed rpm  Rack travel in mm Tolerance mm  FULL LOAD DELIVER  Rated speed rpm Aneroid pressure hPa Tel. quantity cm3/1000 strokes Tolerance cm3/1000 strokes Check tolerance cm3/1000s. Spreed	: 10.50 : + 1.50 Y AT FULL LOAD STOP : 1250 : - : 142.0 : + 1.0 : + 4.0

# CONTROL LEVER

control lever
position degree : 296.0
tolerance degree : + 4.0

RATED SPEED

rack travel mm : -1.00

Rated speed rpm Tolerance 1/min rack travel mm Rated speed rpm Tolerance 1/min rack travel mm Tolerance mmm Rated speed rpm	: -6.60 : 1405 : +- 5
LOW IDLE	
control lever position degree tolerance degree Setting point w/o	
Rated speed rpm	
	: < -4.80
Testing:	
Rated speed rpm rack travel mm Tolerance mm Rated speed ipm	
TORQUE CONTROL Rated speed rpm Rated speed rpm	: 1250 : 750
rack travel mm Tolerance mm	: -1.60 : ← 0.10
Rated speed rpm rack travel mm Tolerance mm	
Start interlock	
Rated speed rpm Rated speed rpm	: > 130 : < 245
Check speed 1/min Check speed 1/min	: > 110 : < 255

FUEL DELIVERY CHARACTERISTICS			
Aneroid pressure	• _		
Rated speed rpm	· · 750		
Del. quantity			
cm3/1000 strokes	: 104.0		
Tolerance cm3/1000 strokes	7.0		
Check tolerance	: +- 3.0		
cm3/1000s.	: +- 6.0		
rack travel mm	· -2.45		
Tolerance mm	: +- 0.20		
STARTING FUEL DEL	TVERY		
Rated speed rpm	: 100		
Del. quantity cm3/1000 strokes	: 108.0		
Tolerance	. 100.0		
cm3/1000 strokes	: <del>+-</del> 15.0		
Check tolerance			
cm3/1000s.	: <b>←</b> 19.0		
LOW IDLE			
Rated speed rpm	: 300		
Rack travel in mm	: -5.80		
Tolerance mm	: + 0.10		
Del. quantity			
cm3/1000 strokes	: 28.0		
Tolerance cm3/1000 strokes	: <del>+</del> 2.0		
Check tolerance	2.0		
cm3/1000s.	: <b>←</b> 5.0		
Spreed			
Tolerance cm3/1000 strokes	: 8.0		
Check tolerance	: 8.0		
cm3/1000s.	: 12.0		
End of test speci	fication sheet		

#### Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 03.02.98 Test oil : ISO 4113

Combination No. : 0 402 646 675

Injection pump

Pump designation : PE6P12OA32ORS7299 EP type number : 0 412 626 885

Governor

Governer design. : RQV275...1000PA1337K

Governer no. : 0 421 815 554

Cust. part No. : 1322504

Customer—spec. information
Customer : DAF
Motor : WS 268 M
Power KW : 268.0

#### TEST BENCH REQUIREMENTS

Inlet line : 3.2

Test oil inlet

temp. °C : 40
Tolerance °C : +- 2.0

Overflow valve : 1 417 413 000

Inlet press. bar : 1.5 Tolerance bar : + 0.1

Overflow quantity

min. L/h : 140 Tolerance L/h : +- 20.0

Test nozzle holde

assembly : 1 688 901 105

Opening pressure

bar : 208.5 Tolerance bar : + 1.5 Test lines : 1 680 750 089

Outside diameter : 8.0

x inside diameter: 3.0 x length mm : 600

#### REMARKS

(A) INJECTION PUMP SETTING VALUES

Set equal delivery quant.

per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 26.0 Tolerance bar : + 1.0

Prestroke mm : 4.85 Tolerance mm : + 0.05

Check

tolerance mm : + 0.10

Rack travel in mm : 10.50 Tolerance mm : + 1.50

Firing order : 1-5-3-6-2-

: 4

Phasing : 0-60-120-180-240

: -300

Start of delivery mark

Barrel no. : 1

## BASIC SETTING

Rated speed rpm : 980

Rack travel in mm : 13.55
Tolerance mm : + 0.05

Del. quantity

cm3/1000 strokes : 250.0

Tolerance

cm3/1000 strokes : + 1.0

Check tolerance cm3/1000s. : +- 4.0	+ Rated speed rpm : 1370 - guide sleeve
Spreed	travel mm : 13.50 Tolerance mm : + 0.50
Tolerance cm3/1000 strokes : 5.0	GUIDE SLEEVE POSITION
Check tolerance cm3/1000s. : 9.0	control lever
	position degree : - 1 Rated speed rpm : 1248
Rated speed rpm : 275	Rack travel in mm: 12.80
Rack travel in mm: 5.10 Tolerance mm: + 0.10 Del. quantity	Tolerance mm : + 2.00
cm3/1000 strokes : 17.0 Tolerance	FULL LOAD DELIVERY AT FULL LOAD STOP
cm3/1000 strokes : + 3.0 Check tolerance	Rated speed rpm : 980 Aneroid pressure
cm3/1000s. : +- 6.0 Spreed	hPa : - Del. quantity
Tolerance cm3/1000 strokes : 8.0	cm3/1000 strokes : 250.0
Check tolerance cm3/1000s. : 12.0	cm3/1000 strokes : + 1.0
CHC/ (UCUS)	+ cm3/1000s. : + 4.0 + Spreed
(B) SETTING OF INJECTION PUMP	Tolerance cm3/1000 strokes : 5.0
WITH GOVERNOR	Check tolerance
GUIDE SLEEVE TRAVEL	- cm3/1000s. : 9.0
Rated speed rpm : 1047 guide sleeve travel mm : 7.35	CONTROL LEVER
travel mm : 7.35 Tolerance mm : + 0.15	control lever
Rated speed rpm : 275	<pre>position degree : 110.0 tolerance degree : + 4.0</pre>
guide sleeve travel man : 2.04	ל האדבת כסבדת
travel mm : 2.04 Tolerance mm : +- 0.20	+ RATED SPEED + rack travel mm : 12.55 + Rated speed rpm : 1042
Rated speed rpm : 820 guide sleeve	Tolerance 1/min : + 5
travel mm : 5.14	<pre></pre>
Tolerance mm : + 0.25	Rated speed rpm : 1150 Tolerance 1/min : + 15
Rated speed rpm : 480 guide sleeve	rack travel mm : 0.70
travel mm : 3.34	+ Tolerance mm : + 0.70
Tolerance mm : + 0.25	Rated speed rpm : 1250
Rated speed rpm : 1282 guide sleeve	<u></u>
travel nm : 12.00	
Tolerance mm : + 0.25	+ LOW IDLE

control lever position degree : 75.0 tolerance degree : + 4.0
Setting point w/out bumper spring
Rated speed rpm : 175
CRT mm min. :> 7.50
Testing:
Rated speed rpm : 275 rack travel mm : 5.10 Tolerance mm : + 0.10
Rated speed rpm : 350
TORQUE CONTROL Rated speed rpm: : 980 rack travel mm : 13.55 Tolerance mm : + 0.05
Rated speed rpm : 750 rack travel mm : 13.05 Tolerance mm : + 0.05
Rarted speed rpm : 600 rack travel mm : 12.35 Tolerance mm : + 0.10
Rated speed rpm : 500 rack travel mm : 11.90 Tolerance mm : + 0.10
ANEROID/ALTITUDE COMPENSATOR TEST
SETTING
Rated speed rpm : 980 Pressure hPa : 1500 rack travel mm : 13.55 Tolerance mm : + 0.05
Rated speed rpm : 980 Pressure hPa : - rack travel mm : 8.20 Tolerance mm : + 0.10
MEASUREMENT
Rated speed rpm : 980
Pressure hPa : 820

rack travel mm Tolerance mm	: 12.25 : + 0.05
Pressure hPa rack travel mm Tolerance mm	: 400 : 9.40 : +- 0.15
FUEL DELIVERY CHAI	RACTERISTICS
Aneroid pressure	The second second second second second second second second second second second second second second second se
hPa Rated speed rpm	: – : 750
Del. quantity	
cm3/1000 strokes Tolerance	: 263.0
cm3/1000 strokes Check tolerance	: +- 2.0
cm3/1000s. Spreed	: <del></del>
Tolerance cm3/1000 strokes	: 8.0
Check tolerance cm3/1000s.	: 12.0
rack travel mm Tolerance mm	: 12.35 : + 0.10
Aneroid pressure	
hPa Rated speed rpm	600
Del. quantity cm3/1000 strokes	: 144.0
Tolerance	•
cm3/1000 strokes Check tolerance	: ← 1.0
cm3/1000s.	: +- 4.0
LOW IDLE	
Rated speed rpm	: 275
Rack travel in mm Tolerance mm	: 5.10 : ← 0.10
Del. quantity	
cm3/1000 strokes Tolerance	: 17.0
cm3/1000 strokes Check tolerance	: <b>←</b> 3.0
cm3/1000s. Spreed	: <b>←</b> 6.0

Tolerance : 8.0 Check tolerance cm3/1000s. : 12.0

#### Note remarks

Refer to Service Info for test and adjustment instructions. See microcard(s) W400/...

Edition Test oil

: 04.02.98 : ISO 4113

Combination No. : 0 402 646 704

Injection pump

Pump designation : PE6P120A320LS7904 EP type number : 0 412 626 961

Governor

Governer design. : RQV300...950PA1377

Governer no. : 0 421 814 208

Cust. part No.

: 04223929 KY

Customer-spec. information

: KHD Customer

: BF6M1015/C Motor : 300.0

Power KW

## TEST BENCH REQUIREMENTS

Inlet line

Test oil inlet

temo. °C Tolerance \*C : +- 2.0

: 2 417 413 033 Overflow valve

Inlet press. bar : : + 0.1 Tolerance bar

Overflow quantity

: 240 min. L/h Tolerence l/h : + 20.0

Test nozzle holde

: 1 688 901 105 assembly

Opening pressure

208.5 bar Tolerance bar : + 1.5 Test lines : 1 680 750 075

Outside diameter : 8.0

x inside diameter: x length mm : 1000

## REMARKS

(A) INJECTION PUMP SETTING VALUES

Set equal delivery quant.

per values \_\_\_\_\_

# BEGINNING OF DELIVERY

Test pressure bar : 26.0 Tolerance bar : - 1.0

4.05 Prestroke mm : + 0.05Tolerance mm

Check

tolerance mm : + 0.10

Rack travel in mm: 10.50 Tolerance mm : +- 1.50

Firing order : 6-3-5-2-4-

: 0-60-120-180-240 Phasing

: -300

Tolerance : ← 0.50

Check

tolerance \*NW : +- 0.75

Start of delivery blocking

\*NW after s.o.d. : 300.00 Tolerance : **←** 0.50

Check

tolerance \*NW : + - 0.75

Barrel no. : 6

#### BASIC SETTING

Rated speed rpm : 950

Rack travel in mm : 13.40 Tolerance mm : + 0.05  Del. quantity cm3/1000 strokes : 350.0	Rated speed rpm : 1160 guide sleeve travel mm : 13.50 Tolerance mm : +- 0.50
Tolerance cm3/1000 strokes : +- 1.0	GUIDE SLEEVE POSITION  Rated speed rpm : 1050
Check tolerance cm3/1000s. : + 4.0	Rack travel in mm: 12.40 Tolerance mm: + 1.30
Spreed	†
Tolerance cm3/1000 strokes : 6.0	FULL LOAD DELIVERY AT FULL LOAD STOP Rated speed rpm : 950
Check tolerance : 9.0	Aneroid pressure : 1700
	+ Del. quantity + cm3/1000 strokes : 350.0 + Tolerance
Raited speed rpm : 300	+ cm3/1000 strokes : +- 1.0 + Check tolerance
Rack travel in mm: 4.70	+ cm3/1000s. : +- 4.0
Tolerance mm : +- 0.10	Spreed
Del. quantity cm3/1000 strokes : 23.0	+ Tolerance + cm3/1000 strokes : 6.0
Tolerance	+ Check tolerance
cm3/1000 strokes : + 3.0	+ cm3/1000s. : 9.0
Check tolerance	+
cm3/1 <b>000</b> S. : +- 6.0 Spreed	
Tolerance	+ CONTROL LEVER
cm3/1000 strokes : 8.0	†
Check tolerance cm3/1000s. : 12.0	+ control lever + position degree : 122.0
cm3/1000s. : 12.0	tolerance degree : + 4.0
(B) SETTING OF INJECTION PUMP	+ RATED SPEED
WITH GOVERNOR	rack travel mm : 12.40
	+ Rated speed rpm : 985
	+ Tolerance 1/min : +- 5
GUIDE SLEEVE TRAVEL	+ rack travel mm : 4.50
Rated speed rpm : 999	+ Rated speed rpm : 4.50
guide sleeve	Tolerance 1/min : +- 15
travel mm : 10.19	+
Tolerance mm : + 0.15	+ rack travel mm : 0.50
700	Tolerance mm : + 0.50
Rated speed rpm : 300 guide sleeve	Rated speed rpm : 1200
travel mm : 1.13	+
Tolerance mm : + 0.20	+
Rated speed rpm : 700 guide sleeve	LOW IDLE
travel mm : 5.10	1
Tolerance mm : + 0.25	+

control lever

76.0 position degree : tolerance degree : + 4.0

Setting point w/out bumper spring

Rated speed rom 200

: > 6.50 CRT man min.

Testing:

300 Rated speed rpm rack travel mm 4.70 : + 0.10Tolerance ma

Rated speed rpm 345

TORQUE CONTROL

950 Rated speed rpm 13.40 rack travel mm : + 0.05 Tolerance mm

ANEROID/ALTITUDE COMPENSATOR TEST

## SETTING

400 Rated speed rpm 1700 Pressure hPa 13.40 rack travel mm : +- 0.05 Tolerance mm

400 Rated speed rpm Pressure hPa 8.40 rack travel mm : + 0.20Tolerance mm

**MEASUREMENT** 

400 Rated speed rpm

550 Pressure hPa : 10.20 rack travel mm : + 0.20 Tolerance mm

Pressure hPa 1000 12.50 rack travel mm : +- 0.05 Tolerance mm

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure

400 Rated speed rpm :

Del. quantity

cm3/1000 strokes : 230.0

Tolerance

cm3/1000 strokes : +-1.0

Check tolerance

cm3/1000s. : **←** 4.0

## STARTING FUEL DELIVERY

100 Rated speed rpm 8.40 rack travel mm : +- 0.30Tolerance mm Del. quantity

cm3/1000 strokes : 135.0

Tolerance

cm3/1000 strokes : + 20.0

Check tolerance

: + 24.0cm3/1000s.

## LOW IDLE

Rated speed rpm : 300

4.70 Rack travel in mm : 0.10 Tolerance mm Del. quantity

cm3/1000 strokes : 23.0

Tolerance

3.0 cm3/1000 strokes : +-

Check tolerance

cm3/1000s. 6.0 Spreed

Tolerance

8.0 cm3/1000 strokes :

Check tolerance

cm3/1000S. 12.0

#### Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 04.02.98 Test oil : ISO 4113

Combination No. : 0 402 646 887AB

Injection pump

Pump designation : PE6P120A720RS7188

: -10

EP type number : 0 412 626 924

6overnor

Governer design. : RQV200...950PA725-7

Governer no. : 0 421 813 803

Cust. part No. : 1333122-1

Customer-spec. information Customer : SCANIA

Motor : DSC 11 23

# TEST BENCH REQUIREMENTS

Inlet line : 4.2

Vibration

damper

(RoBo diaphragm): 3.1

Test oil inlet

temp. °C : 40
Tolerance °C : + 2.0

Overflow valve : 1 417 413 025

Inlet press. bar : 2.5Tolerance bar :  $\leftarrow$  0.1

Overflow quantity

min. L/h : 190 Tolerance L/h : + 20.0

Test nozzle holde

assembly : 1 688 901 104

Opening pressure

bar : 251.5
Tolerance bar : + 1.5

Test lines : 1 680 750 008

Outside diameter : 6.0

x inside diameter: 2.0 x length mm : 600

#### REMARKS

(A) INJECTION PUMP SETTING VALUES

Set equal delivery quant.

per values \_\_\_\_\_

# BEGINNING OF DELIVERY

Test pressure bar : 26.0 Tolerance bar : + 1.0

Prestroke mm : 4.45
Tolerance mm : + 0.05

Check

tolerance mm :  $\leftarrow$  0.10

Rack travel in mm : 10.50 Tolerance mm : +- 1.50

Firing order : 1-5-3-6-2-

: 4

Phasing : 0-60-120-180-240

: -300

Tolerance :  $\leftarrow$  0.50

Check

tolerance \*NW : + 0.75

## Start of delivery mark

Tolerance :  $\leftarrow$  0.50

Check

tolerance \*NW : + 0.75

Barrel no. : 1

## BASIC SETTING

Rated speed rpm : 700

	Tolerance mm : +- 0.30
Rack travel in mm : 13.85 Tolerance mm : + 0.05	Rated speed rpm : 350 guide sleeve travel mm : 2.70
Del. quantity cm3/1000 strokes : 252.0	Tolerance mm : +- 0.30
Tolerance cm3/1000 strokes : + 1.0	Rated speed rpm : 1125 guide sleeve travel mm : 9.50 Tolerance mm : + 0.20
Check tolerance cm3/1000s. : + 4.0	GUIDE SLEEVE POSITION
Spreed	30102 022242 7 00171074
Tolerance cm3/1000 strokes : 8.0	control lever pusition degree : - 1 Rated speed rpm : 1150
Check tolerance : 12.0	Rack travel in mm : 9.50 Tolerance mm : +- 2.50
Ratted speed rpm : 250	FULL LOAD DELIVERY AT FULL LOAD STOP
Rack travel in mm : 4.70 Tolerance mm : + 0.10	Rated speed rpm : 700 Aneroid pressure
Del. quantity - cm3/1000 strokes : 16.0 -	hPa : - Del. quantity cm3/1000 strokes : 252.0
Tolerance - cm3/1000 strokes : + 3.0 - Check tolerance -	Tolerance : + 1.0
cm3/1000s. : +- 6.0 Spreed	- Check tolerance - cm3/1000s. : + 4.0
Tolerance cm3/1000 strokes : 4.0	Spreed Tolerance
Check tolerance cm3/1000s. : 8.0	cm3/1000 strokes : 8.0 Check tolerance
	cm3/1000s. : 12.0
(B) SETTING OF INJECTION PUMP WITH GOVERNOR	CONTROL LEVER
GUIDE SLEEVE TRAVEL	control lever
Rated speed rpm : 1045	position degree : 60.0 tolerance degree : + 4.0
guide sleeve : 8.50	t - control lever
Tolerance mm : + 0.10	position degree : 114.0 tolerance degree : +- 4.0
Rated speed rpm : 225	+
guide sleeve : 1.40	RATED SPEED : 12.80
travel mm : 1.40 - Tolerance mm : + 0.20 -	Rated speed rpm : 995 Tolerance 1/min : +- 5
Rated speed rpm : 650 - guide sleeve	Check - speed 1/min : +- 10
travel mm : 4.80	+

rack travel mm Rated speed rpm Tolerance 1/min Check speed 1/min	
rack travel mm Tolerance mm Rated speed rpm	: 0.50
LOW IDLE	
control lever position degree tolerance degree	: 64.0 : + 4.0
control lever position degree tolerance degree	: 10.0 : + 4.0
Setting point w/o	ut bumper spring
Rated speed rpm	: 150
CRT mm min.	: > 6.00
Testing:	
Rated speed rpm rack travel mm Tolerance mm	: 250 : 4.70 : + 0.10
Rated speed rpm	: 300
TORQUE CONTROL Rated speed rpm rack travel mm Tolerance mm	: 700 : 13.85 : ← 0.05
Rated speed rpm rack travel mm Tolerance mm	: 950 : 13.85 : + 0.05
ANEROID/ALTITUDE	

ANEROID/ALT	ITUDE
COMPENSATOR	TEST

# SETTING

Rated speed rpm : 500
Pressure hPa : 1500
rack travel mm : 13.85
Tolerance mm : + 0.05

Rated speed rpm	:	500
Pressure hPa	:	-
rack travel mm	:	9.60
Tolerance mm	: +-	0.20

## **MEASUREMENT**

Rated speed rpm	: 500
Pressure hPa	: 270
rack travel mm	: 10.90
Tolerance mm	: ← 0.15
Pressure hPa	: 440
rack travel mm	: 11.90
Tolerance mm	: ← 0.05

# FUEL DELIVERY CHARACTERISTICS

Aneroid pressure	•	
Rated speed rpm	:	950
Del. quantity cm3/1000 strokes Tolerance	:	237.0
cm3/1000 strokes	: +	- 4.0
Check tolerance cm3/1000S.	: +	- 6.0

Aneroid pressure		
hPa	:	-
Rated speed rpm	:	500
Del. quantity		
cm3/1000 strokes	•	128.0
Tolerance		
cm3/1000 strokes	:	<b>←</b> 1.0
Check tolerance		
cm3/1000s.	:	<b>←</b> 4.0

# STARTING FUEL DELIVERY

Rated speed rpm	:	100
rack travel mm	:	10.40
Tolerance mm	: +-	0.20
Del. quantity		
cm3/1000 strokes	:	165.0
Tolerance		
cm3/1000 strokes	: +-	20.0
Check tolerance		
cm3/1000s.	: +-	24.0

# LOW IDLE

Rated speed rpm	:		250
Rack travel in mm Tolerance mm Del. quantity	: +	_	4.70 0.10
cm3/1000 strokes	:		16.0
cm3/1000 strokes Check tolerance	: -	<b>—</b>	3.0
cm3/1000s. Spreed	; 1	-	6.0
Tolerance cm3/1000 strokes Check tolerance	:		4.0
cm3/1000s.	:		8.0

#### Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 04.02.98 Test oil : ISO 4113

Combination No. : 0 402 646 937AB

Injection pump

Pump designation : PE6P120A720RS7188

: -100

EP type number : 0 412 626 925

**Governor** 

Governer design. : RQV200...950PA725-7

Governer no. : 0 421 813 803

Cust. part No. : 1333121-1

Customer—spec. information Customer : SCANIA Motor : DSC11 21

## TEST BENCH REQUIREMENTS

Inlet line : 4.2

Vibration damper

(RoBo diaphragm) : 3.1

Test oil inlet

temp. °C : 40
Tolerance °C : + 2.0

Overflow valve : 1 417 413 025

Inlet press. bar : 2.5 Tolerance bar : + 0.1

Test nozzle holde

assembly : 1 688 901 104

Opening pressure

bar : 251.5 Tolerance bar : + 1.5 Test Lines : 1 680 750 008

Outside diameter : 6.0

x inside diameter: 2.0

x length mm : 600

#### **REMARKS**

(A) INJECTION PUMP SETTING VALUES

Set equal delivery quant.

per values \_\_\_\_

# BEGINNING OF DELIVERY

Test pressure bar : 26.0 Tolerance bar : + 1.0

Prestroke mm : 4.45
Tolerance mm : → 0.05
Check

tolerance mm : + 0.10

Rack travel in mm: 10.50 Tolerance mm: : +- 1.50

Firing order : 1-5-3-6-2-

: 4

Fhasing : 0-60-120-180-240

: -300

Tolerance : + 0.50

Check

tolerance \*NW : +- 0.75

Start of delivery mark

Tolerance :  $\leftarrow$  0.50

Check

tolerance  $^{\circ}NW$  : + 0.75

Barrel no. : 1

## BASIC SETTING

Rated speed rpm : 700

Rack travel in mm : 12.75
Tolerance mm : + 0.05

	+	guide sleeve
Del. quantity cm3/1000 strokes :	220.0	travel mm : 2.70 Tolerance mm : + 0.30
Tolerance cm3/1000 strokes : +	- 1.0	Rated speed rpm : 1125 guide sleeve travel mm : 9.50
Check tolerance cm3/1000s. :+	- 4.0	Tolerance mm : + 0.20
Spreed		GUIDE SLEEVE POSITION
Tolerance cm3/1000 strokes :	8.0	control lever position degree : - 1
Check talerance cm3/1000s. :	12.0	Rated speed rpm : 1150
		Rack travel in mm : 9.50 Tolerance mm : + 2.50
	+	
Rated speed rpm :	250 +	
	†	FULL LOAD DELIVERY AT FULL LOAD STO
	4.70	Dated around arm a 700
	- 0.10 +	Rated speed rpm : 700 Aneroid pressure
Del. quantity cm3/1000 strokes :	16.0	hPa : -
Tolerance	10.0	Del. quantity
cm3/1000 strokes : +	_ 30 I	cm3/1000 strokes : 220.0
Check tolerance	I	Tolerance
cm3/1000s. : +	- 6.0	cm3/1000 strokes : +- 1.0
Spreed	0.0	Check tolerance
Tolerance	1	cm3/1000s. : +- 4.0
cm3/1000 strokes :	4.0	Spreed
Check tolerance	1.0	Tolerance
cm3/1000s. :	8.0	cm3/1000 strokes : 8.0
	1	Check tolerance
	1	cm3/1000s. : 12.0
(B) SETTING OF INJECT. WITH GOVERNOR	ION PUMP	
		CONTROL LEVER
GUIDE SLEEVE TRAVEL	1	· · · · · · · · · · · · · · · · · · ·
	+	control lever
Rated speed rpm :	1045	position degree : 60.0
guide sleeve	+	tolerance degree : +- 4.0
travel mm :	8.50 +	
Tolerance mm : +	- 0.10 +	control lever
	+	position degree : 112.0
Rated speed rpm :	225 +	tolerance degree : +- 4.0
guide sleeve	+	
travel mm :	1.40 +	RATED SPEED
Tolerance mm : +	- 0.20 +	rack travel mm : 11.70
	+	Rated speed rpm : 995
Rated speed rpm :	650 +	Tolerance 1/min : + 5
guide sleeve	·	Check
	4.80	speed $1/\min$ : $\leftarrow$ 10
Tolerance mm : +	- 0.30	rack travel mm : 4.00
Rated speed rpm :	350	Rated speed rpm : 1120
nated speed (pill :	I	Tolerance 1/min : + 15
	Ť	TOTAL CONTRACT OF THE CONTRACT

Check speed 1/min : + 20  rack travel mm : 0.50 Tolerance mm : + 0.50 Rated speed rpm : 1250  LOW IDLE  control lever position degree : 62.0 tolerance degree : + 4.0	Tolerance mm : + 0.20  MEASUREMENT  Rated speed rpm : 500  Pressure hPa : 270 rack travel mm : 11.05 Tolerance mm : + 0.15  Pressure hPa : 440 rack travel mm : 12.00 Tolerance mm : + 0.05
control lever position degree : 10.0 - tolerance degree : + 4.0 -	FUEL DELIVERY CHARACTERISTICS  Aneroid pressure hPa : -
Setting point w/out bumper spring  Rated speed rpm : 150	Rated speed rpm : 950 Del. quantity cm3/1000 strokes : 209.0
CRT mm min. : > 6.07	Tolerance cm3/1000 strokes : + 4.0 Check tolerance
Testing: - Rated speed rpm : 250 -	cm3/1000s. : + 6.0
rack travel mm : 4.70 - Tolerance mm : + 0.10 -	Aneroid pressure hPa : - Rated speed rpm : 500
Rated speed rpm : 275	Del. quantity cm3/1000 strokes : 120.0 Tolerance
TORQUE CONTROL Rated speed rpm : 700 - rack travel mm : 12.75 Tolerance mm : + 0.05	cm3/1000 strokes : +- 1.0 Check tolerance cm3/1000s. : +- 4.0
Rated speed rpm : 950 - rack travel mm : 12.75 - Tolerance mm : + 0.05 - rack travel mm : + 0.05	STARTING FUEL DELIVERY  Rated speed rpm : 100 rack travel mm : 10.40
ANEROID/ALTITUDE - COMPENSATOR TEST -	rack travel mm : 10.40 Tolerance mm : + 0.20 Del. quantity cm3/1000 strokes : 165.0 Tolerance
SETTING	cm3/1000 strokes : +- 15.0 Check tolerance
Rated speed rpm : 500 - Pressure hPa : 1500 - rack travel mm : 12.75 - Tolerance mm : + 0.05	cm3/1000s. : +- 19.0
Rated speed rpm : 500 - Pressure hPa : -	LOW IDLE
rack travel mm : 9.60 -	Rated speed rpm : 250

HO5

Rack travel in mm Tolerance mm	: :	+-	4.70 0.10
Del. quantity cm3/1000 strokes	:		16.0
Tolerance cm3/1000 strokes Check tolerance	:	+-	3.0
cm3/1000s. Spreed	:	+-	6.0
Tolerance cm3/1000 strokes			4.0
Check tolerance cm3/1000s.	:		8.0

#### Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 28.11.97 Test oil : ISO 4113

Combination No. : 0 402 678 836

Injection pump

Pump designation : PESP120A329LS7844 EP type number : 0 412 628 860

6overnor

Governer design. : RSV550...1050P0A672

6overner no. : 0 421 833 591

Cust. part No. : 0270746402

Customer spec. information Customer : MB-NFZ Motor : 0M442LA Power KW : 370.0

## TEST BENCH REQUIREMENTS

Inlet line : 3.1

Test oil inlet

temp.  $^{\circ}$ C : 40 Tolerance  $^{\circ}$ C : + 2.0

Overflow valve : 1 417 413 047

Inlet press. bar : 2.0
Tolerance bar : + 0.1

Overflow quantity

min. L/h : 225 Tolerance L/h : + 20.0

Test nozzle holde

assembly : 1 688 901 105

Opening pressure

bar : 208.5 Tolerance bar : + 1.5 Test lines : 1 680 750 075

Outside diameter : 8.0

x inside diameter : 3.0 x length mm : 1000

REMARKS

(A) INJECTION PUMP SETTING VALUES

Set equal delivery quant.

per values \_\_\_\_\_

**BEGINNING OF DELIVERY** 

Test pressure bar : 26.0 Tolerance bar : + 1.0

Prestroke mm : 5.05 Tolerance mm : + 0.05

Check

tolerance mm : + 0.10

Rack travel in mm : 20.00 Tolerance mm : + 1.00

Firing order : 8-7-2-6-3

: - 5- 4- 1

Phasing : 0-45-90-135-180

: −225−270−315 : + 0.50

Tolerance Check

tolerance \*NW : + 0.75

Start of delivery mark

Tolerance :  $\leftarrow$  0.10

Check

tolerance \*NW : + 0.75

Barrel no. : 8

BASIC SETTING

Rated speed rpm : 1050

45/0	
Rack travel in mm : 15.60 + Tolerance mm : + 0.05 +	FULL LOAD DELIVERY AT FULL LOAD STOP
Toterance min . += 0.05	FULL EUAD DELIVERY AT FULL EUAD STOP
Del. quantity	Rated speed rpm : 1050
cm3/1000 strokes : 270.0	Aneroid pressure
	hPa : 1200
Tolerance	Del. quantity
cm3/1000 strokes : + 1.0	cm3/1000 strokes : 270.0
1	Tolerance
Check tolerance	cm3/1000 strokes : +- 1.0
cm3/1000s. : + 4.0	Check tolerance
	cm3/1000s. : +- 4.0
Spreed	Spreed
+	Tolerance
Tolerance	<b>cm3/1000</b> strokes : 5.0
cm3/1000 strokes : 5.0	Check tolerance
+	<b>cm3/100</b> 0s. : 9.0
Check tolerance +	
cm3/1000s. : 9.0	
+	
†	CONTROL. LEVER
Rated speed rom : 550	control lever
Rated speed rpm : 550	position degree : 88.0
Rack travel in mm: 4.00	tolerance degree : + 4.0
Tolerance mm : + 0.10	totel alice degree 4.0
Del. quantity	
cm3/1000 strokes : 19.0	ASSEMBLY GOVERNOR SETTING
Tolerance	ADDE DEL COTEMION DELL'ING
cm3/1000 strokes : +- 3.0 +	Rated speed rpm : 1070
Check tolerance	Tolerance 1/min : + 1
$cm3/1000$ S. : $\leftarrow$ 6.0	rack travel mm : 14.60
Spreed	
Tolerance	Rated speed rpm : 1110
cm3/1000 strokes : 8.0	Tolerance 1/min : + 4
Check tolerance +	rack travel mm : 4.00
cm3/1000s. : 12.0	
+	rack travel mm : 0.85
+	Tolerance mm : +- 0.55
(B) SETTING OF INJECTION PUMP +	Rated speed rpm : 1200
WITH GOVERNOR +	
†	Pakad award was - 4674
†	Rated speed rpm : 1071 Tolerance 1/min : + 1
CUTOE CLEENE DOCUTION	rack travel mm : 14.60
GUIDE SLEEVE POSITION	rack travet mm : 14.00
I	Rated speed rpm : 1111
control lever	Tolerance 1/min : + 4
position degree : -3	rack travel mm : 4.00
Rated speed rpm : 800 +	
	rack travel mm : 0.85
Rack travel in mm: 0.50	rack travel mm : 0.85 Tolerance mm : + 0.55 Rated speed rpm : 1200
Tolerance mm : + 0.20	Tolerance mm : +- 0.55 Rated speed rpm : 1200
+	
governor spring +	
•	Rated speed rpm : 1072
click setting x : 2.00	Tolerance 1/min : + 1
+	rack travel mm : 14.60
<del> </del>	
•	

Rated speed rpm	: 1112	
Tolerance 1/min	: + 4	
rack travel mm	: 4.00	
rack travel mm	: 0.85	
Tolerance mm	: ← 0.55	
Rated speed rpm	: 1200	
Rated speed rpm	: 1073	
Tolerance 1/min	: ← 1	
rack travel mm	: 14.60	
Rated speed rpm	: 1113	
Tolerance 1/min	: + 4	
rack travel mm	: 4.00	
rack travel man	: 0.85	
Tolerance man	: ← 0.55	
Rated speed rpm	: 1200	
Rated speed rpm	: 1074	
Tolerance 1/min	: + 1	
rack travel mm	: 14.60	
Rated speed rpm	: + 1114	
Tolerance 1/min	: + 4	
rack travel mm	: 4.00	
rack travel mm	: 0.85	
Tolerance mm	: ← 0.55	
Rated speed rpm	: 1200	
Rated speed rpm	: 1175	
Tolerance 1/min	: +- 1	
rack travel num	: 14.60	
Rated speed rpm	: 1115	
Tolerance 1/min	: + 4	
rack travel mm	: 4.00	
rack travel mm	: 0.85	
Tolerance mma	: +- 0.55	
LOW IDLE		
control lever position degree tolerance degree	: 70.0 : ← 4.0	
Setting point w/out bumper spring		

Testing:	
Rated speed rpm rack travel mm Tolerance mm	: 550 : 4.00 : + 0.10
rack travel mm Rated speed rpm Tolerance 1/min	: 2.00 : 570 : ← 30
SET IDLE AUXILIAR	Y SPRING
rack travel mm	: 2.00
TORQUE CONTROL Rated speed rpm rack travel mm Tolerance mm	: 1050 : 15.60 : +- 0.05
Rated speed rpm rack travel mm Tolerance mm	: 600 : 15.60 : + 0.10
ANEROID/ALTITUDE COMPENSATOR TEST	
SETTING	
Rated speed rpm Pressure hPa rack travel mm Tolerance mm	: 450 : 1200 : 15.60 : ← 0.10
Rated speed rpm Pressure hPa rack travel mm Tolerance mm	: 450 : - : 9.75 : + 0.20
MEASUREMENT	
Rated speed rpm	: 450
Pressure hPa rack travel mm Tolerance mm	: 600 : 12.20 : + 0.15
Pressure hPa rack travel mm Tolerance mm	: 800 : 14.10 : + 0.20
FUEL DELIVERY CHA	RACTERISTICS
Aneroid pressure hPa	: 1200

Rated speed rpm : 100

CRT mm min. : > 19.50

Rated speed rpm	: 600
Del. quantity cm3/1000 strokes	: 287.0
Tolerance cm3/1900 strokes	
Check tolerance	: +- 3.0
cm3/1000s.	: + 6.0
Aneroid pressure	
hPa	: -
Rated speed rpm Del. quantity	: 500
cm3/1000 strokes Tolerance	: 162.0
cm3/1000 strokes	: + 1.0
Check tolerance cm3/1000s.	: +- 4.0
STARTING FUEL DEL	IVERY
Rated speed rpm	: 100
Del. quantity cm3/1000 strokes	
Tolerance	-
cm3/1000 strokes Check tolerance	: ← 15.0
cm3/1000s.	: <del>+</del> 19.0
LOW IDLE	
Rated speed rpm	: 550
Rack travel in mm	
Tolerance mm	: + 0.10
Del. quantity cm3/1000 strokes	: 19.0
Tolerance cm3/1000 strokes	: ← 3.0
Check tolerance	
cm3/1000s. Spreed	: <b>←</b> 6.0
Tolerance	: 8.0
cm3/1000 strokes Check tolerance	-
cm3/1000s.	: 12.0
P. J. & A	di
End of test speci	TICATION Sheet
a or test speci	rication sneet

#### Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 28.11.97 Test oil : ISO 4113

Combination No. : 0 402 678 837

Injection pump

Pump designation : PE8P120A320LS7911 EP type number : 0 412 628 926

Governor

Governer design. : RSV550...1050P0A679

Governer no. : 0 421 833 598

Cust. part No. : 027 074 6502

Customer—spec. information Customer : MB-NFZ

Motor : OM442LA, Euro

Power KW : 320.0

## TEST BENCH REQUIREMENTS

Inlet line : 3.1

Test oil inlet

temp. °C : 40
Tolerance °C : + 2.0

Overflow valve : 1 417 413 047

Inlet press. bar : 2.0
Tolerance bar : + 0.1

Overflow quantity

min. L/h : 110 Tolerance L/h : + 10.0

Test nozzle holde

assembly : 1 688 901 105

Opening pressure

bar : 208.5 Tolerance bar : + 1.5 Test lines : 1 680 750 075

Outside diameter : 8.0

x inside diameter: 3.0 x length mm : 1000

#### REMARKS

(A) INJECTION PUMP SETTING VALUES

Set equal delivery quant.

per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 26.0 Tolerance bar : + 1.0

Prestroke mm : 5.25
Tolerance mm : + 0.05
Check
tolerance mm : + 0.10

Rack travel in mm : 20.50 Tolerance mm : +- 0.50

Firing order : 8-7-2-6-3

: - 5- 4- 1

Phasing : 0-45-90-135-180 : -225-270-315

Tolerance : + 0.50

Check

tolerance \*NW : +- 0.75

Start of delivery mark

Tolerance : + 0.10

Check

tolerance \*NW : +- 0.75

Barrel no. : 8

## BASIC SETTING

Rated speed rpm : 1050

H11

Post Amount in an a 4/ 40	
Rack travel in mm: 14.40	FILL LOAD DELTHEDY AT FILL LOAD CTOD
Tolerance mm : + 0.05	FULL LOAD DELIVERY AT FULL LOAD STOP
	Dated aread area a 4050
Del. quantity	Rated speed rpm : 1050
cm3/1000 strokes : 227.0	Aneroid pressure
Talanana T	hPa : 1100
Tolerance	Del. quantity
cn3/1000 strokes : + 1.0	cm3/1000 strokes : 227.0
Check tolerance	Tolerance - cm3/1000 strokes : +- 1.0
cm3/1000s. : + 4.0	
Cab/10003. : 4.0	· Check tolerance · cm3/1000S. : +- 4.0
Canad	· cm3/1000\$. : +- 4.0 · Spreed
Spreed	Tolerance
Tolerance	cm3/1000 strokes : 5.0
cm3/1000 strokes : 5.0	Check tolerance
Girst room strokes: 3.0	cm3/1000s. : 9.0
Check tolerance	. GIIO/ (UUU)
cm3/1000S. : 9.0	
T - Cho/ 10003.	
	CONTROL LEVER
I	CONTROL LEVER
Rated speed rpm : 550	· control lever
Rated speed (pin : 330	position degree : 87.0
Rack travel in mm: 4.20	tolerance degree : +- 4.0
Tolerance ma : + 0.10	toterance degree 4.0
Del. quantity	
cm3/1000 strokes : 19.0	ASSEMBLY GOVERNOR SETTING
Tolerance	MOSE DEL GOVERNOR SELLTING
cm3/1000 strokes : + 3.0	Rated speed rpm : 1085
Check tolerance	Tolerance 1/min : +- 1
cm3/1000s. : + 6.0	rack travel mm : 13.50
Spreed	Task Clavet Mill . 13.30
Tolerance	Rated speed rpm : 1125
cm3/1000 strokes : 8.0	Tolerance 1/min : + 4
Check tolerance	rack travel mm : 4.00
cm3/1000s. : 12.0	e der tidaet iiii . 4.00
	rack travel mm : 0.85
$\mathbf{I}$	Tolerance mm : +- 0.55
(B) SETTING OF INJECTION PUMP	Rated speed rpm : 1300
WITH GOVERNOR	nated speed (pi) . (300
MILLI GOAFULOV	
I	Rated speed rpm : 1087
	Tolerance 1/min : +- 1
GUIDE SLEEVE POSITION	rack travel mm : 13.50
Solve Secret Position	. I dek el dvee imi
$\mathbf{I}$	Rated speed rpm : 1127
control lever	Tolerance 1/min : +- 4
position degree : -3	rack travel mm : 4.00
Rated speed rpm : 800	. Tuck travet inn . Tio
Tured speed (pir . 000	rack travel mm : 0.85
Rack travel in mm: 0.50	Tolerance mm : +- 0.55
Tolerance mm : +- 0.20	Rated speed rpm : 1300
TOTAL BEIOG HAM	
governor spring	
pre-tension +	- Rated speed rpm : 1089
click setting x : 2.00	Tolerance 1/min : +- 1
Total Secting A . L.OO	rack travel mm : 13.50
7	I GOT LEGY CL HAM . IJ.JU

Rated speed rpm Tolerance 1/min rack travel mm rack travel mm Tolerance mm Rated speed rpm	: +- 4 : 4.00 : 0.85 : +- 0.55	rack travel mm : 2.00 Rated speed rpm : 580 Tolerance 1/min : + 30  SET IDLE AUXILIARY SPRING rack travel mm : 2.00
Rated speed from Tolerance 1/min rack travel mm  Rated speed rpm Tolerance 1/min rack travel mm  rack travel mm Tolerance mm	: ← 1 : 13.50 : 1131 : ← 4 : 4.00 : 0.85	TORQUE CONTROL Rated speed rpm : 1050 rack travel mm : 14.40 Tolerance mm : + 0.05  Rated speed rpm : 600 Tolerance mm : + 0.10
Rated speed rpm Rated speed rpm Tolerance 1/min	: 1300 : 1093 : + 1	ANEROID/ALTITUDE COMPENSATOR TEST SETTING
rack travel mma Rated speed rpma Tolerance 1/min rack travel mma	: 1133 : + 4 : 4.00	Rated speed rpm : 450 Pressure hPa : 1100 rack travel nm : 15.00 Tolerance nm : + 0.10
rack travel mma Tolerance mm Rated speed rpm Rated speed rpm	: 1300	Rated speed rpm : 450 Pressure hPa : - rack travel mm : 11.10 Tolerance mm : + 0.20  MEASUREMENT
Tolerance 1/min rack travel mm	: <del>-</del> 1	Rated speed rpm : 450
Rated speed rpm Tolerance 1/min rack travel mm		Pressure hPa : 750 rack travel mm : 14.30 Tolerance mm : + 0.20
rack travel mm Tolerance mm Rated speed rpm	: 0.85 : ← 0.55 : 1300	Pressure hFa : 550 rack travel mm : 12.50 Tolerance mm : + 0.15
LOW IDLE		FUEL DELIVERY CHARACTERISTICS
control lever position degree tolerance degree Testing:		Aneroid pressure hPa : 1100 Rated speed rpm : 600 Del. quantity cm3/1000 strokes : 248.0
Rated speed rpm rack travel mm Tolerance mm	: 4.20	Tolerance cm3/1000 strokes : + 2.0

Check tolerance
cm3/1000s. : +- 5.0
Spreed
Tolerance
cm3/1000 strokes : 8.0
Check tolerance

Check tolerance cm3/1000s. : 12.0

Aneroid pressure

hPa : -Rated speed rpm : 500 Del. quantity cm3/1000 strokes : 166.0

Tolerance cm3/1000 strokes : + 2.0

Check tolerance

cm3/1000s. :  $\leftarrow$  5.0

## STARTING FUEL DELIVERY

Rated speed rpm : 100

Del. quantity

cm3/1000 strokes : 250.0

Tolerance

cm3/1000 strokes : +- 15.0

Check tolerance

cm3/1000s. : +- 19.0

## LOW IDLE

Rated speed rpm : 550

Rack travel in mm: 4.20
Tolerance mm: + 0.10
Del. quantity
cm3/1000 strokes: 19.0
Tolerance
cm3/1909 strokes: + 3.0
Check tolerance

 $c_{13}/1000$ s. : +- 6.0

Spreed Tolerance

cm3/1000 strokes : 8.0

Check tolerance

cm3/1000s. : 12.0

#### Note remarks

Refer to Service Info for test and adjustment instructions. See microcard(s) W400/...

Edition : 03.02.98 Test oil : ISO 4113

Combination No. : 0 402 746 638

Injection pump

Pump designation : PES6F120A320RS7449

: 0 412 726 974 EP type number

**Governor** 

Governer design. : RQ275/1050PA1373 Governer no. : 0 421 801 831

Cust. part No. : CCEP 5171-66/254

Customer-spec, information

: RENAULT V.I. Customer : MI7R062045 C41 Motor

Power KW : 152.0

## TEST BENCH REQUIREMENTS

Inlet line : 3.1

Test oil inlet

temp. °C Tolerance °C : + 2.0

Overflow valve : 2 417 413 078

Inlet press. bar : 2.5 : + 0.1 Tolerance bar

Overflow quantity

min. l/h : 220
Tolerance l/h : + 10.0

Test nozzle holde

: 1 688 901 101 assembly

Opening pressure

208.5 Tolerance bar : + 1.5 Test lines : 1 680 750 008

Outside diameter : 6.0

x inside diameter : 2.0 x length mm : 600

#### REMARKS

(A) INJECTION PUMP SETTING VALUES

Set equal delivery quant.

per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 26.0 Tolerance bar : + 1.0

: 4.70 Prestroke mm : +- 0.05 Tolerance mm Check

tolerance mm

: + 0.10

Rack travel in mm: 20.25 Tolerance mm : + 0.75

Firing order : 1-5-3-6-2-

Phasing : 0-60-120-180-240

: -300

Tolerance : **←** 0.50

Check

tolerance \*NW : +- 0.75

Start of delivery mark

\*NW after s.o.d. : -0.95 Tolerance

Check

: +- 0.50

tolerance \*NW : + 0.75

Barrel no. : 1

CRT ZERO POSITION

Rack travel in mm : 11.70 Tolerance mm : + 0.05	Rated speed rpm : 1050
Toterance is 10.05	guide sleeve travel mm : 6.70 Tolerance mm : +- 0.10
BASIC SETTING +	
Ratted speed rpm : 1050	Rated speed rpm : 668 guide sleeve
1	travel mm : 6.18 Tolerance mm : + 0.10
Del. quantity cm3/1000 strokes : 176.0	•
Tolerance	Rated speed rpm : 377 guide sleeve
cm3/1000 strokes : + 1.0	travel mm : 5.00
	Tolerance mm : + 0.10
Check tolerance cm3/1000s. : + 4.0	Rated speed rpm : 460
Sanad	guide sleeve travel mm : 6.00
Spreed +	Tolerance mm : +- 0.10
cn3/1000 strokes : 5.0	Rated speed rpm : 1310
	guide sleeve
Check tolerance	travel mm : 11.50
cm3/1000s. : 9.0	Tolerance mm : +- 0.50
	Rated speed rpm : 874
Rated speed rpm : 275	guide sleeve travel mm : 6.52
Nated speed (pill)	Tolerance mm : + 0.10
Rack travel in mm: -6.20	•
Tolerance mm : + 0.10 +	CUTAE OF EDUC POOTSTON
Del. quantity + cm3/1000 strokes : 28.0 +	GUIDE SLEEVE POSITION
Tolerance	•
cm3/1000 strokes : + 2.0	control lever
Check tolerance	position degree : 109
cm3/1000s. : + 5.0 +	Rated speed rpm : 500
Spreed +	Rack travel in mm: 20.00
cm3/1000 strokes : 8.0	Tolerance mm : + 0.80
Check tolerance	•
cm3/1000s. : 12.0	CHALLACA ACITHEDY ST FILL SAA ATAD
‡	FULL LOAD DELIVERY AT FULL LOAD STOP
(B) SETTING OF INJECTION PUMP WITH GOVERNOR	Rated speed rpm : 1050 Aneroid pressure
	hPa : 1000
GUIDE SLEEVE TRAVEL	Del. quantity cm3/1000 strokes : 176.0
+	Tolerance
Rated speed rpm : 1125	cm3/1000 strokes : +- 1.0 Check tolerance
guide sleeve + travel num : 7.06 +	cm3/1000s. : +- 4.0
Tolerance and :+ 0.15	Spreed
-	Tolerance
Rated speed rpm : 275	cm3/1000 strokes : 5.0
guide sleeve travel mm : 2.38	Check tolerance cm3/1000s. : 9.0
travel num : 2.38	· /// 10003 · // // // // // // // // // // // // /
TOTAL GLICE THE O. E.	

#### CONTROL LEVER

control lever

position degree : 276.0 tolerance degree : + 4.0

RATED SPEED

rack travel mm : -1.00 Rated speed rpm : 1115 Tolerance 1/min : +- 5

rack travel mm : -7.70
Rated speed rpm : 1210
Tolerance 1/min : +- 15

rack travel mm : -11.20Tolerance mm : +-0.50Rated speed rpm : 1350

#### LOW IDLE

control lever

position degree : 256.0 tolerance degree :  $\leftarrow$  4.0

Setting point w/out bumper spring

Rated speed rom : 200

CRT mm min. : < -4.30

## Testing:

Rated speed rpm : 275
rack travel mm : -6.20
Tolerance mm : + 0.10

rack travel mm : -9.70
Rated speed rpm : 365
Tolerance 1/min : + 20

TORQUE CONTROL

Rated speed rpm : 1050

Rated speed rpm : 600 rack travel mm : 0.80 Tolerance mm : + 0.10

# ANEROID/ALTITUDE COMPENSATOR TEST

#### SETTING

Rated speed rpm : 500
Pressure hPa : 1000
rack travel mm : 0.80
Tolerance mm : + 0.10

Rated speed rpm : 500
Pressure hPa : -1.00
Tolerance mm : + 0.20

## **MEASUREMENT**

Rated speed rpm : 500

Pressure hPa : 280 rack travel mm : 0.35 Tolerance mm : + 0.15

Pressure hPa : 160 rack travel mm : -0.40 Tolerance mm : + 0.05

## Start interlock

Rated speed rpm : > 100
Rated speed rpm : < 195

Check

speed 1/min : > 80 Check speed 1/min : < 215

## FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : 1000
Rated speed rpm : 600
Del. quantity
cm3/1000 strokes : 193.0

Cms/lutu strokes : 195.u Tolerance

cm3/1000 strokes : +- 3.0

Check tolerance cm3/1000s. : +- 6.0

\*

Aneroid pressure

hPa : Rated speed rpm : 500
Del. quantity

cm3/1000 strokes : 149.0
Tolerance
cm3/1000 strokes : +- 1.0

Check tolerance cm3/1000s. : +- 4.0

## STARTING FUEL DELIVERY

100 Rated speed rpm

Del. quantity cm3/1000 strokes : 155.0

Tolerance

cm3/1000 strokes : + 15.0

Check tolerance

cm3/1000s.: **←** 19.0

## LOW IDLE

Rated speed rpm 275

Rack travel in mm: -6.20 : **←** 0.10 Tolerance mm Del. quantity

cm3/1000 strokes : 28.0

Tolerance

cm3/1000 strokes : + 2.0

Check tolerance

cm3/1000s. 5.0

Spreed Tolerance

8.0 cm3/1000 strokes :

Check tolerance

cm3/1000s. 12.0

#### Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 03.02.98 Test oil : ISO 4113

Combination No. : 0 402 746 645

Injection pump

Pump designation : PES6P120A320RS7364

EP type number : 0 412 726 930

Governor

Governer design. : RQV300...1050PA1204

Soverner no. : 0 421 814 123

Cust. part No. : CCEP 5148A 66-236

Customer-spec. information

Customer : RENAULT V.I.

Motor : MIDR 06.20.45D41

Power KW : 219.0

#### TEST BENCH REQUIREMENTS

Inlet line : 3.1

Test oil inlet

temp. °C : 40 Tolerance °C : + 2.0

Overflow valve : 2 417 413 078

Inlet press. bar : 2.5 Tolerance bar : + 0.1

Test nozzle holde

assembly : 1 688 901 105

Opening pressure

bar : 208.5 Tolerance bar : + 1.5

Test lines : 1 680 750 089

Outside diameter : 8.0

H19

x inside diameter: 3.0 x length mm : 600

#### REMARKS

(A) INJECTION PUMP SETTING VALUES

Set equal delivery quant.

per values

# BEGINNING OF DELIVERY

Test pressure bar : 26.0 Tolerance bar : + 1.0

Prestroke mm : 4.55
Tolerance mm : ÷ 0.05

Check

tolerance mm : + 0.10

Rack travel in mm : 20.25 Tolerance mm : + 0.75

Firing order : 1-5-3-6-2-

: 4

Phasing : 0-60-120-180-240

: -300

Tolerance :  $\leftarrow$  0.50

Check

tolerance \*NW : + 0.75

Start of delivery mark

\*NW after s.o.d. : -0.40 Tolerance :  $\leftarrow 0.50$ 

Check

tolerance \*NW : +- 0.75

Barrel no. : 1

## CRT ZERO POSITION

Rack travel in mm : 13.90 Tolerance mm : + 0.05

BASIC SETTING

Rated speed rpm : 600 -	f guide sleeve
· · · · · · · · · · · · · · · · · · ·	travel ma : 2.40
Del. quantity -	Tolerance mm : $\leftarrow$ 0.25
cm3/1000 strokes : 290.0	+
·	Rated speed rpm : 415
Tolerance	guide sleeve
cm3/1000  strokes : + 1.0	travel mm : 3.28
-	Tolerance mm : + 0.25
Check tolerance	1
cm3/1000s. : +- 4.0	Rated speed rpm : 460
	guide sleeve
Spreed -	travel mm : 3.86
•	Tolerance mm : + 0.25
Tolerance -	+
cm3/1000 strokes : 5.0 -	Rated speed rpm : 1460
	guide sleeve
Sheck tolerance -	† travel mm : 11.50
cm3/1000s. : 9.0	Tolerance mm : +- 0.50
	†
•	
	GUIDE SLEEVE POSITION
Rated speed rpm : 300	†
Dod Americal Survey 17 (D	†
Rack travel in mm: -7.60	control lever
Tolerance mm : + 0.10	+ position degree :-1 + Rated speed rpm : 1230
Del. quantity - cm3/1000 strokes : 26.0 -	rated speed rom : 1250
Tolerance	Rack travel in mm : 11.70
cm3/1000 strokes : +- 2.0	Tolerance mm : + 1.30
Check tolerance	T roterance man . 4- 1.50
cm3/1000s. : + 5.0	
Spreed	FULL LOAD DELIVERY AT FULL LOAD STOP
Tolerance	TOLK BOND OCCUPANT IN TOLK COND OF O
cm3/1000 strokes : 8.0	Rated speed rpm : 600
Check tolerance	Aneroid pressure
cm3/1000s. : 12.0	hPa : 1000
	Del. quantity
	cm3/1000 strokes : 290.0
(B) SETTING OF INJECTION PUMP	Tolerance
WITH GOVERNOR	cm3/1000 strokes : +- 1.0
•	- Check tolerance
	- cm3/1000s. : + 4.0
GUIDE SLEEVE TRAVEL -	Spreed
	- Tolerance
Rated speed rpm : 1135	cm3/1000 strokes : 5.0
guide sleeve	Check tolerance
travel mm : 8.45	+ cm3/1000s. : 9.0
Tolerance mm : + 0.25	†
-	†
Rated speed rpm : 300	
guide sleeve	CONTROL LEVER
travel mm : 1.33	†t
Tolerance mm : +- 0.25	control lever
	position degree : 303.0
Rated speed rpm : 752	tolerance degree : +- 4.0
guide sleeve	DATEN ODEEN
travel mm : 6.09	+ RATED SPEED - rack travel mm : −1.00
Tolerance mm : + 0.25	
Rated speed rpm : 365	+ Rated speed rpm : 1140 + Tolerance 1/min : +- 5
Rated speed rpm : 365	T localine itiliti . The s

-9.90 rack travel mm Rated speed rpm : 1310 Tolerance 1/min : +- 15 rack travel mm : -13.40

: **←** 0.50 Tolerance no Rated speed rpm 1400

LOW IDLE

control lever

position degree : 267.0 tolerance degree : +- 4.0

Testing:

300 Rated speed rpm -7.50rack travel mm Tolerance mm : +- 0.10

: 200 Rated speed rpm

CRT mm max. : < -5.10

360 Rated speed rpm

TORQUE CONTROL 600 Rated speed rpm

: 1050 Rated speed rpm Tolerance mm : +- 0.10

ANEROID/ALTITUDE COMPENSATOR TEST

SETTING

500 Rated speed rpm : 1000 Pressure hPa :

500 Rated speed rpm Pressure hPa -2.50rack travel mm : + 0.20Tolerance mm

MEASUREMENT

500 Rated speed rpm

240 Pressure hPa : : -1.45 rack travel mm : + 0.15Tolerance mm

Pressure hPa 400 -0.50rack travel mm : + 0.05Tolerance mm

Start interlock

Rated speed rpm 100 : > Rated speed rpm 230

Check

speed 1/min 80 : >

Check

speed 1/min : < 250

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure

1000 hPa Rated speed rpm : 1050

Del. quantity

cm3/1000 strokes : 298.0

Tolerance

cm3/1000 strokes :  $\leftarrow$  3.0

Check tolerance

cm3/1000s. : +-6.0

Aneroid pressure

hPa 500 Rated speed rpm

Del. quantity cm3/1000 strokes : 166.0

Tolerance

cm3/1000 strokes : +- 1.0

Check tolerance

cm3/1000s.4.0

STARTING FUEL DELIVERY

100 Rated speed rpm rack travel mm 20.25 : +- 0.75 Tolerance mm

Del. quantity

cm3/1000 strokes : 145.0

Tolerance

cm3/1000 strokes : +- 15.0

Check tolerance

cm3/1000s. : + 19.0

LOW IDLE

Rated speed rpm	:	300
Rack travel in man	:	-7.60
Tolerance mm	:	+- 0.10
Del. quantity		
cm3/1000 strokes	:	26.0
Tolerance		
cm3/1000 strokes	:	<b>←</b> 2.0
Check tolerance		
cm3/1000s.	:	<b>←</b> 5.0
Spreed		
Tolerance		
cm3/1000 strokes	:	8.0
Check tolerance		
cm3/1000s.	:	12.0

#### Note remarks

Refer to Service Info for test and adjustment instructions. See microcard(s) W400/...

**Fdition** : 03.02.98 Test oil : ISO 4113

Combination No. : 0 402 746 650

Injection pump

Pump designation : PES6P120A320RS7344

EP type number : 0 412 726 914

Governor

Governer design. : RQ275/1050PA999-6

Governer no. : 0 421 801 785

Cust. part No. : CCEP 5151A 66-230

Customer-spec. information

: RENAULT V.I. Customer : MIDR 062045 M41 Motor

: 250.0 Power KW

## TEST BENCH REQUIREMENTS

Inlet line : 3.1

Test oil inlet

temp. °C 40 Tolerance °C : + 2.0

Overflow valve : 2 417 413 071

Inlet press. bar : 2.5

Overflow quantity

min. L/h : 145 Tolerance L/h : ← 10.0

Test nozzle holde

: 1 688 901 105 assembly

Opening pressure

H23

: 208.5 bar Tolerance bar : + 1.5

Test Lines : 1 680 750 089

Outside diameter : 8.0

x inside diameter : 3.0 x length mm : 600

### REMARKS

(A) INJECTION PUMP SETTING VALUES

Set equal delivery quant.

per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 26.0 Tolerance bar : + 1.0

Prestroke mm : 4.50 Tolerance mm : + 0.05

Check

: + 0.10 tolerance mm

Rack travel in mm: 11.00 Tolerance mm : + 0.50

Firing order : 1-5-3-6-2-

: 0-60-120-180-240 Phasing

: -300

+ 0.50 Tolerance

Check

tolerance \*NW : + 0.75

Start of delivery mark

\*NW after s.o.d. : -0.15 Tolerance : +- 0.50

Check

tolerance \*NW : + 0.75

1 Barrel no. :

## Beginning of delivery differende

betw. rack trav.

21.00 and maximum rack 11.00 travel

CRT ZERO POSITION	
Rack travel in man Tolerance man	: 11.60 : + 0.05
BASIC SETTING	
Rated speed rpm	: 600
Del. quantity cm3/1000 strokes	: 287.0
Tolerance cm3/1000 strokes	: + 1.0
Check tolerance cm3/1000s.	: + 4.0
Spreed	
Tolerance cm3/1000 strokes	: 5.0
Check tolerance cm3/1000s.	: 9.0
Rated speed rpm	: 275
Rack travel in mm Tolerance mm	: -7.00 : + 0.10
Del. quantity cm3/1000 strokes	: 37.0
Tolerance cm3/1000 strokes Check tolerance	: +- 2.0
cm3/1000s. Spreed	: <del>+</del>
Tolerance cm3/1000 strokes	: 8.0
Check tolerance cm3/1000s.	: 12.0
(B) SETTING OF IN WITH GOVERNOR	UECTION PUMP
GUIDE SLEEVE TRAV	EL
Rated speed rpm guide sleeve	: 1131
travel mm Tolerance mm	: 6.38 : + 0.10

Rated speed rpm guide sleeve travel mana Tolerance mana	: 275 : 0.80 : ← 0.10				
Rated speed rpm guide sleeve travel mm Tolerance mm	: 1050 : 6.00 : ← 0.10				
Rated speed rpm guide sleeve travel mm Tolerance mm	: 396 : 2.99 : ← 0.10				
Rated speed rpm guide sleeve travel mm Tolerance mm	: 550 : 6.00 : + 0.10				
Rated speed rpm guide sleeve travel mm Tolerance mm	: 1350 : 11.50 : ← 0.50				
GUIDE SLEEVE POSITION					
control lever position degree Rated speed rpm	: 109 : 600				
Rack travel in man Tolerance man					
FULL LOAD DELIVER	Y AT FULL LOAD STOP				
Rated speed rpm Aneroid pressure hPa Del. quantity cm3/1000 strokes	: 600				
Tolerance cm3/1000 strokes Check tolerance cm3/1000s. Spreed Tolerance cm3/1000 strokes Check tolerance	: 287.0 : + 1.0 : + 4.0 : 5.0				

CONTROL LEVER

control lever position degree tolerance degree RATED SPEED rack travel mm Rated speed rpm Tolerance 1/min rack travel mm Tolerance 1/min rack travel mm Tolerance mm Rated speed rpm Tolerance mm Rated speed rpm Tolerance mm Rated speed rpm Rated speed rpm	: -1.00 : 1135 : ← 5 : -7.60 : 1240 : ← 15 : -11.10 : ← 0.50
LOW IDLE	
control lever position degree tolerance degree	: 251.0 : ← 4.0
Setting point w/c	out bumper spring
Rated speed rpm	: 200
CRT mm min.	: < -5.80
Testing:	
Rated speed rpm rack travel mm Tolerance mma	: 275 : -7.00 : +- 0.10
rack travel mm Rated speed rpm Tolerance 1/min	: -9.50 : 365 : + 20
TORQUE CONTROL Rated speed rpm	: 600
Rated speed rpm Tolerance mm	: 1050 : +- 0.10
ANEROID/ALTITUDE COMPENSATOR TEST	
SETTING	
Rated speed rpm Pressure hPa	: 500 : 1000

Rated speed rpm Pressure hPa rack travel mm Tolerance mm	: 500 : -3.65 : ← 0.30
Rated speed rpm	: 500
Pressure hPa rack travel mm Tolerance mm	: 560 : -1.25 : + 0.15
Pressure hPa rack travel mm Tolerance mm	: 320 : -2.75 : + 0.05
Start interlock	
Rated speed rpm Rated speed rpm	: > 100 : < 225
Check speed 1/min Check	: > 80
speed 1/min	: < 245
FUEL DELIVERY CHA	RACTERISTICS
Ameroid pressure hPa Rated speed rpm Del. quantity cm3/1000 strokes Tolerance cm3/1000 strokes Check tolerance cm3/1000s.	
Aneroid pressure hPa Rated speed rpm Del. quantity cm3/1000 strokes Tolerance cm3/1000 strokes Check tolerance cm3/1000s.	: - 500 : 113.0 : + 1.0 : + 4.0

STARTING FUEL DELIVERY

Rated speed rpm : 100

H25

Del. quantity

cm3/1000 strokes : 150.0

Tolerance

cm3/1000 strokes :  $\leftarrow$  15.0

Check tolerance

cm3/1000s. : +- 19.0

LOW IDLE

275 Rated speed rpm :

Rack travel in mm : -7.00 Tolerance mm : + 0.10

Del. quantity cm3/1000 strokes : 37.0

Tolerance

cm3/1000 strokes : + 2.0

Check tolerance

5.0 cm3/1000s.

Spreed

Tolerance

cm3/1000 strokes : 8.0

Check tolerance

12.0 cm3/1000s.

### Note remarks

Refer to Service Info for test and adjustment instructions. See microcard(s) W400/...

: 03,02,98 Edition Test oil : ISO 4113

Combination No. : 0 402 746 994

Injection pump

Pump designation : PES6P12DA32ORS7344

EP type number : 0 412 726 914

Governor

Governer design. : RQV275...1000PA1161

6overner no. : 0 421 814 100

Cust. part No. : CCEP 5143A 66-231

Customer-spec. information

Customer : RENAULT V.I. : MIDR 062045 E/41 Motor

Power KW : 249.0

## TEST BENCH REQUIREMENTS

Inlet line : 3.1

Test oil inlet

temp. °C Tolerance °C : +- 2.0

: 2 417 413 071 Overflow valve

Inlet press. bar : 2.5

Test nozzle holde

: 1 688 901 105 assembly

Opening pressure

: 208.5 bar Tolerance bar

Test lines : 1 680 750 089

Outside diameter : 8.0

x inside diameter: 3.0 x length mm : 600

## REMARKS

(A) INJECTION PUMP SETTING VALUES

Set equal delivery quant.

per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 26.0 Tolerance bar : + 1.0

Prestroke mm 4.50 Tolerance mm : +- 0.05

Check

tolerance mm : + 0.10

Rack travel in mm: 11.00 Tolerance mm : + 1.50

Firing order : 1-5-3-6-2-

: 0-60-120-180-240 Phasing

: -300

Tolerance : + 0.50

Check

tolerance \*NW : +- 0.75

Start of delivery mark

\*NW after s.o.d. : -0.15

Tolerance : + - 0.50

Check

tolerance \*NW : **←** 0.75

: 1 Barrel no.

Beginning of delivery differende

betw. rack trav.

21.00

and maximum rack

11.00 travel Difference \* CS :

2.25

CRT ZERO POSITION

Rack travel in man Tolerance man	
BASIC SETTING	
Rated speed rpm	: 600
Del. quantity cm3/1000 strokes	: 285.0
Tolerance cm3/1000 strokes	: + 1.0
Check tolerance cm3/1000s.	: +- 4.0
Spreed	
Tolerance cm3/1000 strokes	: 5.0
Check tolerance cm3/1000s.	: 9.0
Rated speed rpm	: 300
Rack travel in man Tolerance man	: −7.70 : ← 0.10
Del. quantity cm3/1000 strokes Tolerance	: 28.0
cm3/1000 strokes Check tolerance	: <b>←</b> 2.0
cm3/1000s. Spreed	: <del>+-</del> 5.0
Tolerance cm3/1000 strokes	: 8.0
Check tolerance cm3/1000s.	: 12.0
(B) SETTING OF IN WITH GOVERNOR	JECTION PUMP
GUIDE SLEEVE TRAV	/EL
Rated speed rpm guide sleeve	: 1086
travel mm Tolerance mm	: 8.09 : +- 0.25
Rated speed rpm	: 300
guide steeve travel mm	: 1.66

Tolerance mm	: ← 0.25
Rated speed rpm	: 793
guide sleeve travel mm Tolerance mm	: 6.00 : ← 0.25
Rated speed rpm guide sleeve	: 343
travel mm Tolerance mm	: 2.33 : + 0.25
Rated speed rpm guide sleeve	: 393
travel mm Tolerance mm	: 2.95 : + 0.25
Rated speed rpm guide sleeve	: 500
travel mm Tolerance mm	: 3.72 : ← 0.25
Rated speed rpm guide sleeve	: 1410
travel mm Tolerance mm	: 11.50 : ← 0.50
GUIDE SLEEVE POSI	TION
control lever	

position degree : - 1 Rated speed rpm : 1235

Rack travel in mm: 11.70 Tolerance mm : + 1.30

# FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 600 Aneroid pressure 1000 Del. quantity cm3/1000 strokes : 285.0 Tolerance cm3/1000 strokes : + 1.0

Check tolerance cm3/1000s. 4.0

Spreed Tolerance

cm3/1000 strokes : 5.0 Check tolerance cm3/1000s.

9.0

CONTROL LEVER

control lever position degree tolerance degree	: 120.0 : ← 4.0
RATED SPEED rack travel mm Rated speed rpm Tolerance 1/min	: -1.00 : 1080 : +- 5
rack travel mm Rated speed rpm Tolerance 1/min	: −8.60 : 1215 : ← 15
rack travel mm Tolerance mm Rated speed rpm	: +- 0.50
LOW IDLE	
control lever position degree tolerance degree	: 65.0 : ← 4.0
Setting point w/o	out bumper spring
Rated speed rpm	: 200
CRT um arin.	: < -5.70
Testing:	
Rated speed rpm rask travel mm Tolerance mm	: 300 : −7.70 : ← 0.10
Rated speed rpm	: 400
TORQUE CONTROL Rated speed rpm	: 600
Rated speed rpm Tolerance mm	: 1000 : ← 0.10
ANEROID/ALTITUDE COMPENSATOR TEST	
SETTING	
Rated speed rpm Pressure hPa	: 500 : 1000
Rated speed rpm	: 500

Pressure hPa rack travel mm Tolerance mm	: -3.35 : + 0.30
MEASUREMENT	
Rated speed rpm	: 500
Pressure hPa rack travel mm Tolerance mm	: 320 : -2.65 : ← 0.15
Pressure hPa rack travel mm Tolerance mm	: 640 : -0.70 : + 0.05
Start interlock	
Rated speed rpm Rated speed rpm	: > 100 : < 225
Check speed 1/min Check	; > 80
speed 1/min	: < 245
FUEL DELIVERY CHA	RACTERISTICS
Aneroid pressure	1000
hPa Rated speed rpm	: 1000 : 1000
hPa Rated speed rpm Del. quantity cm3/1000 strokes	: 1000
hPa Rated speed rpm Del. quantity cm3/1000 strokes Tolerance cm3/1000 strokes	: 1000 : 284.0
hPa Rated speed rpm Del. quantity cm3/1000 strokes Tolerance	: 1000 : 284.0
hPa Rated speed rpm Del. quantity cm3/1000 strokes Tolerance cm3/1000 strokes Check tolerance cm3/1000s.  Aneroid pressure	: 1000 : 284.0 : +- 3.0
hPa Rated speed rpm Del. quantity cm3/1000 strokes Tolerance cm3/1000 strokes Check tolerance cm3/1000s.  Aneroid pressure hPa Rated speed rpm	: 1000 : 284.0 : +- 3.0
hPa Rated speed rpm Del. quantity cm3/1000 strokes Tolerance cm3/1000 strokes Check tolerance cm3/1000s.  Aneroid pressure hPa Rated speed rpm Del. quantity cm3/1000 strokes	: 1000 : 284.0 : + 3.0 : + 6.0
hPa Rated speed rpm Del. quantity cm3/1000 strokes Tolerance cm3/1000 strokes Check tolerance cm3/1000s.  Aneroid pressure hPa Rated speed rpm Del. quantity cm3/1000 strokes Tolerance cm3/1000 strokes	: 1000 : 284.0 : + 3.0 : + 6.0
hPa Rated speed rpm Del. quantity cm3/1000 strokes Tolerance cm3/1000 strokes Check tolerance cm3/1000s.  Aneroid pressure hPa Rated speed rpm Del. quantity cm3/1000 strokes Tolerance	: 1000 : 284.0 : + 3.0 : + 6.0 : 500 : 124.0

Rated speed rpm : 100 rack travel mm : 20.25 Tolerance mm : + 0.75

Del. quantity

cm3/1000 strokes : 150.0

Tolerance

cm3/1000 strokes :  $\leftarrow$  15.0

Check tolerance

cm3/1000s. : + 19.0

# LOW IDLE

Rated speed rpm : 300

Rack travel in mm : -7.70 Tolerance mm : + 0.10

Del. quantity cm3/1000 strokes : 28.0

Tolerance

cm3/1000 strokes :  $\leftarrow$  2.0

Check tolerance

cm3/1000s. :  $\leftarrow$  5.0

Spreed

Tolerance

cm3/1000 strokes : 8.0

Check tolerance

cm3/1000s. : 12.0

Note remarks

Refer to Service Info for test and adjustment instructions.

See microcard(s) W400/...

Edition : 04.02.98 Test oil : ISO 4113

Combination No. : 0 402 846 079

Injection pump

Pump designation : PE6P12OA32ORS8051 EP type number : 0 412 826 037

**Governor** 

Governer design. : RQV300...1050PA1141

6overner no. : 0 421 814 091

Cust. part No. : 11031994 Ppe = 082

Customer-spec. information

Customer : VCE

Motor : TD122KFE Power KW : 297.0

TEST BENCH REQUIREMENTS

Inlet line : 3.1

Test oil inlet

temp. °C : 40
Tolerance °C : + 2.0

Overflow valve : 2 417 413 078

Inlet press. bar : 2.5 Tolerance bar : + 0.1

Overflow quantity

min. L/h : 145 Tolerance L/h : + 20.0

Test nozzle holde

assembly : 1 688 901 103

Opening pressure

bar : 208.5 Tolerance bar : + 1.5 Test lines : 1 680 750 008

Outside diameter : 6.0

x inside diameter: 2.0 x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES

Set equal delivery quant.

per values \_\_\_\_\_

BEGINNING OF DELIVERY

Test pressure bar : 26.0 Tolerance bar : + 1.0

Prestroke mm : 4.50
Tolerance mm : + 0.05

Check

tolerance mm :  $\leftarrow$  0.10

Rack travel in mm : 11.00 Tolerance mm : + 0.50

Firing order : 1-5-3-6-2-

: 4

Phasing : 0-60-120-180-240

: -300

Tolerance :  $\leftarrow$  0.50

Check

tolerance  $^{\circ}NW$  :  $\leftarrow$  0.75

Start of delivery mark

Tolerance : +- 0.50

Check

tolerance  $^{\circ}NW$  :  $\leftarrow$  0.75

Barrel no.	: 1	guide sleeve travel mm : 2.04 Tolerance mm : + 0.20
SASIC SETTING		Rated speed rpm : 1038
	-	guide sleeve
Rated speed rpm	: 700 -	travel mm : 7.03
•	***************************************	Tolerance mm : + 0.25
Rack travel in m	m: 13.10	Rated speed rpm : 490
Tolerance mm	: + 0.05	guide sleeve
		travel mm : 4.65
Del. quantity	•	Tolerance mm : + 0.25
cm3/1000 strokes	: 298.0	+
		Rated speed rpm : 1300
Tolerance	-	guide sleeve
cm3/1000 strokes	: <del>+</del> 1.0	travel mm : 11.50
		Tolerance mm : +- 0.50
Check tolerance cm3/1000s.	: + 4.0	<u></u>
UHD/ ( <b>UUU</b> ).	• • •••	GUIDE SLEEVE POSITION
Spreed	4	+
Tolerance		control lever
cm3/1000 strokes	: 8.0	position degree : - 1
amor rood attores		Rated speed rpm : 1190
Check tolerance		The second secon
cm3/1000s.	: 11.0	Rack travel in mm: 12.20
		Tolerance mm : + 1.30
Rack travel in mathematic managements of the manage	: + 0.10 : 23.0 : + 3.0 : + 6.0	Rated speed rpm : 700  Aneroid pressure  hPa : 1500  Del. quantity  cm3/1000 strokes : 298.0  Tolerance  cm3/1000 strokes : + 1.0  Check tolerance  cm3/1000s. : + 4.0  Spreed  Tolerance  cm3/1000 strokes : 8.0  Check tolerance
(B) SETTING OF I	NJECTION PUMP	cm3/1000s. : 11.0
WITH GOVERNOR		CONTROL LEVER
GUIDE SLEEVE TRA	VEL -	control lever
	•	position degree : 64.0
Rated speed rpm	: 1131	tolerance degree : + 4.0
guide sleeve		<del>†</del>
travel mm	: 8.63	control lever
	: ← 0.15	position degree : 122.0
Tolerance mm	0.15	
Tolerance mma Rated speed rpm		tolerance degree : + 4.0

J04

RATED SPEED rack travel mm Rated speed rpm Tolerance 1/min rack travel mm Rated speed rpm Tolerance 1/min rack travel mm Tolerance mm Rated speed rpm	: 1120 : + 5 : 4.00 : 1180 : + 15 : 0.50
LOW IDLE	
control lever position degree tolerance degree	: 64.0 : + 4.0
control lever position degree tolerance degree	: 12.0 : + 4.0
Setting point w/o	out bumper spring
Rated speed rpm	: 225
CRT mm min.	: > 6.00
Testing:	
Rated speed rpm rack travel mm Tolerance mm	: 325 : 3.60 : + 0.10
	. +- 0.10
Rated speed rpm	
Rated speed rpm  TORQUE CONTROL Rated speed rpm rack travel mm	: 375 : 700 : 13.10 : ← 0.05
Rated speed rpm  TORQUE CONTROL Rated speed rpm rack travel mm  Tolerance mm  Rated speed rpm rack travel mm	: 375 : 700 : 13.10 : ← 0.05 : 700 : 12.40
Rated speed rpm  TORQUE CONTROL Rated speed rpm rack travel mm Tolerance mm  Rated speed rpm rack travel mm Tolerance mm  ANEROID/ALTITUDE	: 375 : 700 : 13.10 : ← 0.05 : 700 : 12.40

Pressure hPa rack travel mm Tolerance mm	: : +-	1500 14.00 0.25		
Rated speed rpm Pressure hPa rack travel mm Tolerance mm	:	500 10.00 0.15		
MEASUREMENT				
Rated speed rpm	:	500		
Pressure hPa rack travel mm Tolerance mm	:	850 2.90 0.20		
Pressure hPa rack travel mm Tolerance mm	: +-	300 0.25 0.05		
Start interlock				
Rated speed rpm Rated speed rpm	; >	100 230		
Check speed 1/min Check	: >	80		
speed 1/min	: >	250		
FUEL DELIVERY CHA	RACTE	RISTICS		-
Aneroid pressure			-	
hPa	:	770		
Rated speed rpm Del. quantity	:	700		
cm3/1000 strokes	•	269 0		

Aneroid pressure		
hPa	:	_
Rated speed rpm	:	7 <b>0</b> 0
Del. quantity		
cm3/1000 strokes	:	269.0
Tolerance		
cm3/1000 strokes	: +-	1.0
Check tolerance		
cm3/1000s.	: +-	4.0
Spreed		
Tolerance	_	40.0
cm3/1000 strokes	:	10.0
Check tolerance		14.0
cm3/1000s.	•	14.0
Aneroid pressure		
hPa	:	_
Rated speed rpm	:	700
Del quantity	•	

Rated speed rpm : 700
Del. quantity
cm3/1000 strokes : 188.0
Tolerance
cm3/1000 strokes : + 1.0

J05

Check tolerance : +- 4.0 cm3/1000s.

## STARTING FUEL DELIVERY

Rated speed rpm 100 : 20.50 rack travel mm : + 0.50 Tolerance mm

Del. quantity cm3/1000 strokes : 165.0

Tolerance

cm3/1000 strokes : + 15.0

Check tolerance

cm3/1000s. : + 19.0

## LOW IDLE

Rated speed rpm : 325

Rack travel in mm : 3.60 : **←** 0.10 Tolerance mm Del. quantity

cm3/1000 strokes :

Tolerance cm3/1000 strokes : + 3.0

23.0

Check tolerance

cm3/1000s. : +-6.0

Spreed

Tolerance

5.0 cm3/1000 strokes :

Check tolerance

8.0 cm3/1000s.

#### Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 03.02.98 Test oil : ISO 4113

Combination No. : 0 402 946 027

Injection pump

Pump designation : PES6P120A320RS8047

EP type number : 0 412 926 029

Governor

Governer design. : RQV275...1250PA1312K

Governer no. : 0 421 815 966

Cust. part No. : CCEP 5160A 66-244

Customer-spec. information

Customer : RENAULT V.I.

Motor : MIDR 06.02.26L71

Power KW : 141.7

## TEST BENCH REQUIREMENTS

Inlet line : 3.1

Test oil inlet

temp. °C : 40
Tolerance °C : + 2.0

Overflow valve : 2 417 413 078

Inlet press. bar : 2.5

Overflow quantity

min. l/h : 145 Tolerance l/h : ← 20.0

Test nozzle holde

assembly : 1 688 901 101

Opening pressure

bar : 208.5 Tolerance bar : + 1.5 Test lines : 1 680 750 008

Outside diameter : 6.0

x inside diameter: 2.0 x length mm : 600

#### REMARKS

(A) INJECTION PUMP SETTING VALUES

Set equal delivery quant.

per values \_\_\_\_\_

# BEGINNING OF DELIVERY

Test pressure bar : 26.0 Tolerance bar : + 1.0

Prestroke mm : 5.00 Tolerance mm : + 0.05

Check

tolerance mm : + 0.10

Rack travel in mm: 11.00 Tolerance mm: + 0.50

Firing order : 1-5-3-6-2-

: 4

Phasing : 0-60-120-180-240

: -300 Tolerance : + 0.50

Check

tolerance \*NW : + 0.75

Start of delivery mark

\*NW after s.o.d. : -0.25 Tolerance : + 0.50

Check
tolerance \*NW : + 0.75

Barrel no. : 1

Beginning of delivery differende

betw. rack trav.

mm : 21.00

and maximum rack

travel : 11.00 Difference ° CS : 3.25

	+ Rated speed rpm :
	guide sleeve
CRT ZERO POSITION	+ travel mm :
CK! LENO FOOTITON	+ Tolerance mm : +
Rack travel in mm : 12.10	+ Rated speed rpm :
Tolerance mm : + 0.05	+ guide sleeve
oterance min : - U.05	
	travel mm :
ASIC SETTING	+ Tolerance mm : +-
	Rated speed rpm :
rted speed rpm : 1250	+ guide sleeve
	_ + travelmm :
el. quantity	+ Tolerance mm : +
m3/1000 strokes : 183.0	. +
	_ + Rated speed rom :
olerance	guide sleeve
m3/1000 strokes : + 1.0	+ travel mm :
	+ Tolerance mm : +
heck tolerance	
m3/1000s. : +- 4.0	+
- 114	GUIDE SLEEVE POSITION
preed	+
d annua	†
olerance	+ control lever
3/1 <b>000</b> strokes : 5.0	+ position degree : -
	Rated speed rpm :
ck tolerance	+
1000s. : 9.0	+ Rack travel in mma:
	_ + Tolerance mm : +-
	<u> </u>
ted speed rpm : 325	FULL LOAD DELIVERY AT
ck travel in mm : -7.20	Rated speed rpm :
lerance mm : + 0.10	+ Aneroid pressure
	+ hPa :
el. quantity	The state of the s
13/1000 strokes : 39.0	+ Del. quantity
lerance	+ cm3/1000 strokes :
3/1000 strokes : + 1.0	+ Tolerance
eck tolerance	+ cm3/1000 strokes : +-
neck tolerance n3/1000s. : +- 6.0	+ Check tolerance
preed	+ cm3/1000s. : +-
blerance	Spreed
m3/1000 strokes : 8.0	+ Tolerance
neck tolerance	+ cm3/1000 strokes :
3/1 <b>000</b> s. : 12.0	+ Check tolerance
	- cm3/1000s. :
SETTING OF INJECTION PUMP	<u> </u>
	T
ITH GOVERNOR	CONTROL LEVER
	+
UIDE SLEEVE TRAVEL	control lever
47/0	position degree :
ted speed rpm : 1340 ride sleeve	tolerance degree : +-
ravel mm : 9.96	RATED SPEED
olerance mm : + 0.15	+ rack travel mm :
Stording thin O.15	, radic diarec imi

1.52 0.20 923 6.76 0.25 550 3.92 0.25 1650 13.50 0.50 1400 11.10 2.70 FULL LOAD STOP 1250 1600 183.0 - 1.0 - 4.0 5.0 9.0 295.0 - 4.0 + rack travel mm : −1.00

325

Rated speed rpm Tolerance 1/min	: 1330 : +- 15
rack travel mm Rated speed rpm Tolerance 1/min	: 1470
rack travel mm Tolerance mm Rated speed rpm	: <b>←</b> 0.55
LOW IDLE	_
control lever position degree tolerance degree	: 241.0 : ← 4.0
Setting point w/o	out bumper spring
Rated speed rpm	: 200
CRT mm min.	: < -5.80
Testing:	
Rated speed rpm rack travel mm Tolerance mm	: 325 : -7.20 : + 0.10
Rated speed rpm	: 325
TORQUE CONTROL Rated speed rpm	: 1250
Rated speed rpm rack travel mm Tolerance mm	: 650 : -2.10 : +- 0.10
Rated speed rpm rack travel mm Tolerance mm	: 350 : −3.25 : ← 0.25
ANEROID/ALTITUDE COMPENSATOR TEST	
SETTING	
Rated speed rpm Pressure hPa Tolerance mm	: 1250 : 1600 : +- 0.10

rack travel mm Tolerance mm	: -4.70 : + 0.20
MEASUREMENT	
Rated speed rpm	: 1250
Pressure hPa rack travel mm Tolerance mm	: 240 : −3.10 : ← 0.20
Pressure hPa rack travel mm Tolerance mm	: 520 : -1.20 : + 0.05
Start interlock	
Rated speed rpm Rated speed rpm	: > 175 : < 240
Check speed 1/min	: > 155
Check speed 1/min	: < 260
FUEL DELIVERY CHA	RACTERISTICS
Aneroid pressure hPa Rated speed rpm Del. quantity	
cm3/1000 strokes Tolerance	
cm3/1000 strokes Check tolerance cm3/1000s.	: +- 3.0 : +- 6.0
rack travel mm Tolerance mm	: -3.25 : +- 0.25
Aneroid pressure hPa Rated speed rpm	: - : 500
Del. quantity cm3/1000 strokes	: 120.0
Tolerance cm3/1000 strokes	: + 1.0
Check tolerance cm3/1000s.	: +- 4.0
STARTING FUEL DEL	IVERY

Rated speed rpm : 100

Del. quantity cm3/1000 strokes : 113.0 Tolerance cm3/1000 strokes :  $\leftarrow$  10.0

Check tolerance

cm3/1000s. : +- 14.0

# LOW IDLE

Rated speed rpm : 325

Rack travel in mm: -7.20 : + 0.10 Tolerance mm Del. quantity cm3/1000 strokes : 39.0 Tolerance cm3/1000 strokes :  $\leftarrow$  1.0 Check tolerance cm3/1000s. 6.0 Spreed Tolerance

cm3/1000 strokes :

8.0 Check tolerance cm3/1000s. 12.0

#### Note remarks

Refer to Service Info for test and adjustment instructions. See microcard(s) W400/...

Edition : 10.02.98 Test oil : ISO 4113

Combination No. : 9 400 087 504

Injection pump

Pump designation : PESSP120A720LS7453

EP type number : F 000 400 203

Governor

Governer design. : RQV300...950PA1264

Governer no. : 9 420 080 393

Cust. part No. : 0270740002

Customer-spec. information

Customer : MB8

Motor : OM 449 LA-EUROII

Power KW : 235.4

## TEST BENCH REQUIREMENTS

Inlet line : 4.1

Test oil inlet

temp. \*C : 40
Tolerance \*C : +- 2.0

Overflow valve : 1 417 413 047

Inlet press. bar : 2.3

Test nozzle holde

assembly : 1 688 901 105

Opening pressure

bar : 208.5 Tolerance bar : + 1.5

Test Lines : 1 680 750 075

Outside diameter : 8.0

x inside diameter : 3.0 x length mm : 1000

## REMARKS

(A) INJECTION PUMP SETTING VALUES Set equal delivery quant.

per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 26.0 Tolerance bar : + 1.0

Prestroke mm : 4.70
Tolerance mm : + 0.05

Check

tolerance mm : +- 0.10

Rack travel in mm: 21.00

Firing order : 1-3-5-4-2

Phasing : 0-72-144-216-288

Tolerance :  $\leftarrow$  0.50

Check

tolerance \*NW : + 0.75

### BASIC SETTING

Rated speed rpm : 950

Rack travel in mm : 13.60 Tolerance mm : + 0.05

Del. quantity

cm3/1000 strokes : 265.0

Tolerance

cm3/1000 strokes : +- 1.0

Check tolerance

cm3/1000s. : +- 4.0

Spreed

Tolerance

cm3/1000 strokes : 5

5.0

Check tolerance cm3/1000s.	: 9.0	Rack travel in mm: 16.50 Tolerance mm: + 1.30
Rated speed rpm	: 300	FULL LOAD DELIVERY AT FULL LOAD STOP
Rack travel in m		Rated speed rpm : 950
Tolerance mm Del. quantity	: ← 0.10	+ Aneroid pressure + hPa : 1500
cm3/1000 strokes Folerance	: 17.0	Del. quantity cm3/1000 strokes : 265.0
m3/1000 strokes	: ← 3.0	+ Tolerance
heck tolerance m3/1000s.	: <b>←</b> 6,0	+ cm3/1000 strokes : +- 1.0 + Check tolerance
preed	. , 0.0	+ cm3/1000s. : +- 4.0
iolerance m3/1000 strokes	: 8.0	+ Spreed + Tolerance
heck tolerance		+ cm3/1000 strokes : 5.0
:m3/1000s.	: 12.0	+ Check tolerance + cm3/1000s. : 9.0
		+ (115) 10005 9.0
(B) SETTING OF I	NJECTION PUMP	İ
ATIN GOACHAOK		CONTROL LEVER
GUIDE SLEEVE TRA	VEL	- + control lever
		position degree : 115.0
Rated speed rpm	: 700	tolerance degree : +- 6.0
puide sleeve ravel mm	: 5.45	RATED SPEED
Tolerance mm	: ← 0.25	rack travel mm : 12.55
Poted spood	: 1050	+ Rated speed rpm : 1035 + Tolerance 1/min : +- 5
Rated speed rpm guide sleeve	: 1050	T locerance than : 3
travel mm	: 7.80	rack travel mm : 4.00
Tolerance mm	: +- 0.10	+ Rated speed rpm : 1140 + Tolerance 1/min : +- 15
Rated speed rpm	: 300	T local duck ivinin . 12
guide sleeve		+ jack travel mm : 0.50
travel mm Tolerance mm	: 0.75 : + 0.25	+ Folerance mm : +- 0.50 + Rated speed rpm : 1250
OUTAINU IRI	0.0	T Kateu speed ripili : 1230
Rated speed rpm	: 500	<u>†</u>
guide sleeve travel mm	: 3.55	Ţ
Tolerance mm	: + 0.25	LOW IDLE
Rated speed rpm	: 1165	Į
guide sleeve		control lever
travel mm	: 9.45	position degree : 78.0
Tolerance mm	: +- 0.25	tolerance degree : +- 6.0
		Setting point w/out bumper spring
GUIDE SLEEVE POS	ITION	+ Rated speed rpm : 100
		T varea speen this . Too
control lever	. 4	CRT mm main. : > 10.00
position degree		Testing:
Rated speed rpm	. 1120	T resemble

Rated speed rom rack travel mm Tolerance mm	: 300 : 6.20 : ← 0.10
Rated speed rpm	: 375
TORQUE CONTROL	: 950
Rated speed rpm rack travel mm	: 950 : 13.60
Tolerance mm	: + 0.05
Rated speed rpm	: 600
rack travel mm Tolerance mm	: 14.00 : +- 0.05
Rated speed rpm	: 800
rack travel mm	: 14.00
Tolerance mm	: <b>-</b> 0.05
Rated speed rpm	: 850
rack travel mm Tolerance mm	: 13.90 : + 0.05
ANEROID/ALTITUDE COMPENSATOR TEST	
SETTING	
Rated speed rpm	: 500
Pressure hPa rack travel mm	· 13 60
Tolerance mm	: 500 : 7500 : 13.60 : ← 0.05
Rated speed rpm	: 500
Fressure hPa	: -
MEASUREMENT	
Rated speed rpm	: 500
Pressure hPa	: 500
rack travel mm Tolerance mm	: 1.05 : +- 0.15
Pressure hPa rack travel mm	: 900 : 2.60
Tolerance mm	: + 0.10
Start interlock	
Rated speed rpm	: > 100 : < 220
Rated speed rpm	: < 220
Check speed 1/min	: > 80
Speed Iviniti	00

heck peed 1/min	: < 240
UEL DELIVERY CHA	RACTERISTICS
neroid pressure	4500
Pa ated speed rpm	: 1500 : 600
el. quantity m3/1000 strokes	: 296.5
olerance m3/1000 strokes	: + 2.0
heck tolerance	
m3/1000s. preed	: + 5.0
olerance m3/1000 strokes	: 8.0
heck tolerance m3/1000s.	: 12.0
10003.	
neroid pressure	1500
Pa ated speed rpm	: 1500 : 800
ack travel mm	: 14.00
olerance mm	: + 0.05
el. quantity m3/1000 strokes	: 285.5
olerance m3/1000 strokes	: +- 2.0
heck tolerance	
m3/1000s. preed	: +- 5.0
olerance m3/1000 strokes	: 8.0
heck tolerance	
m3/1000s.	: 12.0
neroid pressure	
Pa ated speed rpm	: - : 500
el. quantity	
m3/1000 strokes olerance	: 141.5
m3/1000 strokes	: + 1.0
heck tolerance m3/1000s. preed	: +- 4.0
olerance m3/1000 strokes	: 5.0
heck tolerance	
m3/1000s.	: 9.0
TARTING FUEL DEL	

STARTING FUEL DELIVERY

Rated speed rpm : 100 Del. quantity

cm3/1000 strokes : 252.5

Tolerance

cm3/1000 strokes : + 10.0

Check tolerance

cm3/1000s. : + 14.0

## LOW IDLE

Rated speed rpm : 300

6.20 Rack travel in mm : Tolerance mm : + 0.10

Del. quantity

cm3/1000 strokes : 17.0 Tolerance

cm3/1000 strokes :  $\leftarrow$  3.0

Check tolerance

cm3/1000s. 6.0

Spreed

Tolerance 8.0 cm3/1000 strokes :

Check tolerance

12.0 cm3/1000s.

### Note remarks

Refer to Service Info for test and adjustment instructions. See microcard(s) W400/...

Edition Test oil : 07.11.97 : ISO 4113

Combination No.

: F 000 409 007

Injection pump

Pump designation : PES6P110A720RS3389

EP type number

: F 000 400 002

Governor

Governer design. : RQV300...1300PA1343K

Governer no.

: F 000 420 500

Cust. part No.

: 0280743002

Customer spec. information

Customer

: MEB

Motor

: OM366LA-EURO II

Power KW

: 150.0

## TEST BENCH REQUIREMENTS

Inlet Line

: 4.1

Test oil inlet

temp. °C

Tolerance °C

Overflow valve

: 1 417 413 047

Inlet press. bar : 2.3

Test nozzle holde

assembly

: 1 688 901 101

Opening pressure

bar

: 208.5

Tolerance bar

Test lines

: 1 680 750 015

Outside diameter : 6.0

x inside diameter: 3.0 x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES

Set equal delivery quant.

per values \_\_\_\_\_

BEGINNING OF DELIVERY

Test pressure bar : 26.0

Tolerance bar : + 1.0

4.30 Prestroke mm

: - 0.05 Toterance mm

Check

: + 0.10tolerance mm

Rack travel in mm: 21.00

Firing order : 1-5-3-6-2-

Phasing : 0-60-120-180-240

: -300

Tolerance : + 0.50

Check

tolerance \*NW : + 0.75

BASIC SETTING

Rated speed rpm : 1300

Rack travel in mm: 14.30

: +- 0.05 Tolerance mm

Del. quantity

cm3/1000 strokes :

122.0

Tolerance

cm3/1000 strokes :  $\leftarrow$  1.0

Check tolerance

cm3/1000s.

: +-4.0

Spreed

Tolerance cm3/1000 strokes	: 4.0	‡
Check tolerance		<u>†</u>
cm3/1000s.	: 7.5	$\mathbf{I}$
CINDA 10003.	. (	T
		T
		Ť
Datad annual nam	. 700	T
Rated speed rpm	. 300	T
Back thought in m	- 5 50	T
Rack travel in mm Tolerance mm	: + 0.20	T
Del. quantity		T
cm3/1000 strokes	: 13.0	I
Tolerance	. 13.0	Ι
cm3/1000 strokes	• + 25	Ι
Check tolerance		I
cm3/1000s.	: + 5.0	1
Spreed	J	I
Tolerance		1
cm3/1000 strokes	: 4.5	1
Check tolerance	100	1
on3/1000s.	: 7.5	1
	• • • •	1
		1
	NJECTION PUMP	1
(R) SETTING OF TH		
(B) SETTING OF IN		+
		‡
		†
WITH GOVERNOR		† † † †
WITH GOVERNOR GUIDE SLEEVE TRAN	VEL	† † † †
WITH GOVERNOR GUIDE SLEEVE TRAV	VEL	+ + + + + + + + + + + + + + + + + + + +
WITH GOVERNOR GUIDE SLEEVE TRAV Rated speed rpm guide sleeve	VEL: 1350	+ + + + + + + + + + + + + + + + + + + +
GUIDE SLEEVE TRAVERSHIPS TRAVEL INTO THE STREET SPEED TO THE STREET STREET STREET TRAVEL INTO THE STREET STREET TRAVEL INTO THE STREET	VEL: 1350: 8.50:	+ + + + + + + + + + + + + + + + + + + +
GUIDE SLEEVE TRAVERSHIPS TRAVEL INTO THE STREET SPEED TO THE STREET STREET STREET TRAVEL INTO THE STREET STREET TRAVEL INTO THE STREET	VEL: 1350	++++++++
WITH GOVERNOR  GUIDE SLEEVE TRAV  Rated speed rom guide sleeve travel mm  Tolerance mm	VEL : 1350 : 8.50 : ← 0.10	+++++++++
WITH GOVERNOR  GUIDE SLEEVE TRAN  Rated speed rpm guide sleeve travel mm Tolerance mm  Rated speed rpm	VEL : 1350 : 8.50 : ← 0.10	+++++++++
WITH GOVERNOR  GUIDE SLEEVE TRAN  Rated speed rpm guide sleeve travel mm  Tolerance mm  Rated speed rpm guide sleeve	VEL : 1350 : 8.50 : + 0.10 : 300	++++++++++
WITH GOVERNOR  GUIDE SLEEVE TRAN  Rated speed rpm guide sleeve travel mm  Tolerance mm  Rated speed rpm guide sleeve travel mm	VEL : 1350 : 8.50 : ← 0.10 : 300 : 1.05	+++++++++++
WITH GOVERNOR  GUIDE SLEEVE TRAN  Rated speed rpm guide sleeve travel mm  Tolerance mm  Rated speed rpm guide sleeve travel mm	VEL : 1350 : 8.50 : + 0.10 : 300	++++++++++++++
WITH GOVERNOR  GUIDE SLEEVE TRAY  Rated speed rpm guide sleeve travel mm  Tolerance mm  Rated speed rpm guide sleeve travel mm Tolerance mm	VEL  : 1350  : 8.50 : ← 0.10  : 300  : 1.05 : ← 0.25	+++++++++++++++++++++++++++++++++++++++
WITH GOVERNOR  GUIDE SLEEVE TRAY  Rated speed rpm guide sleeve travel mm  Tolerance mm  Rated speed rpm guide sleeve travel mm Tolerance mm  Rated speed rpm guide sleeve travel mm  Tolerance mm	VEL : 1350 : 8.50 : ← 0.10 : 300 : 1.05	++++++++++++++++
WITH GOVERNOR  GUIDE SLEEVE TRAY  Rated speed rpm guide sleeve travel mm  Tolerance mm  Rated speed rpm guide sleeve travel mm  Tolerance mm  Rated speed rpm guide sleeve	VEL  : 1350  : 8.50 : ← 0.10  : 300  : 1.05 : ← 0.25  : 500	++++++++++++++++++
GUIDE SLEEVE TRAV Rated speed rpm guide sleeve travel mm Tolerance mm Rated speed rpm guide sleeve travel mm Tolerance mm Rated speed rpm guide sleeve travel mm Rated speed rpm guide sleeve travel mm	<ul> <li>VEL</li> <li>: 1350</li> <li>: 8.50</li> <li>: + 0.10</li> <li>: 300</li> <li>: 1.05</li> <li>: + 0.25</li> <li>: 500</li> <li>: 3.05</li> </ul>	+++++++++++++++++
GUIDE SLEEVE TRAV Rated speed rpm guide sleeve travel mm Tolerance mm Rated speed rpm guide sleeve travel mm Tolerance mm Rated speed rpm guide sleeve travel mm Rated speed rpm guide sleeve travel mm	VEL  : 1350  : 8.50 : ← 0.10  : 300  : 1.05 : ← 0.25  : 500	++++++++++++++++++
GUIDE SLEEVE TRAV Rated speed rpm guide sleeve travel mm Tolerance mm Rated speed rpm guide sleeve travel mm Tolerance mm Rated speed rpm guide sleeve travel mm Tolerance mm Rated speed rpm guide sleeve travel mm Tolerance mm	** 1350  : 8.50 : + 0.10 : 300 : 1.05 : + 0.25 : 500 : 3.05 : + 0.25	+++++++++++++++++++
GUIDE SLEEVE TRAV Rated speed rpm guide sleeve travel mm Tolerance mm Rated speed rpm guide sleeve travel mm Tolerance mm Rated speed rpm guide sleeve travel mm Tolerance mm Rated speed rpm guide sleeve travel mm Tolerance mm	<ul> <li>VEL</li> <li>: 1350</li> <li>: 8.50</li> <li>: + 0.10</li> <li>: 300</li> <li>: 1.05</li> <li>: + 0.25</li> <li>: 500</li> <li>: 3.05</li> </ul>	<del>+++++++++++++++++++++++++++++++++++++</del>
WITH GOVERNOR  GUIDE SLEEVE TRAN  Rated speed rpm guide sleeve travel mm  Tolerance mm  Rated speed rpm guide sleeve travel mm  Tolerance mm  Rated speed rpm guide sleeve travel mm  Rated speed rpm guide sleeve travel mm  Tolerance mm  Rated speed rpm guide sleeve	<ul> <li>VEL</li> <li>: 1350</li> <li>: 8.50</li> <li>: + 0.10</li> <li>: 300</li> <li>: 1.05</li> <li>: + 0.25</li> <li>: 500</li> <li>: 3.05</li> <li>: + 0.25</li> <li>: 700</li> </ul>	<del>+++++++++++++++++++++++++++++++++++++</del>
GUIDE SLEEVE TRAN  Rated speed rpm guide sleeve travel mm Tolerance mm  Rated speed rpm guide sleeve travel mm Tolerance mm  Rated speed rpm guide sleeve travel mm Tolerance mm  Rated speed rpm guide sleeve travel mm Tolerance mm  Rated speed rpm guide sleeve travel mm Tolerance mm	VEL  : 1350  : 8.50 : ← 0.10  : 300  : 1.05 : ← 0.25  : 500  : 3.05 : ← 0.25  : 700  : 4.35	<del>+++++++++++++++++++++++++++++++++++++</del>
GUIDE SLEEVE TRAN  Rated speed rpm guide sleeve travel mm Tolerance mm  Rated speed rpm guide sleeve travel mm Tolerance mm  Rated speed rpm guide sleeve travel mm Tolerance mm  Rated speed rpm guide sleeve travel mm Tolerance mm  Rated speed rpm guide sleeve travel mm Tolerance mm	<ul> <li>VEL</li> <li>: 1350</li> <li>: 8.50</li> <li>: + 0.10</li> <li>: 300</li> <li>: 1.05</li> <li>: + 0.25</li> <li>: 500</li> <li>: 3.05</li> <li>: + 0.25</li> <li>: 700</li> </ul>	<del>+++++++++++++++++++++++++++++++++++++</del>
GUIDE SLEEVE TRAN  Rated speed rpm guide sleeve travel mm Tolerance mm  Rated speed rpm guide sleeve travel mm Tolerance mm  Rated speed rpm guide sleeve travel mm Tolerance mm  Rated speed rpm guide sleeve travel mm Tolerance mm  Rated speed rpm guide sleeve travel mm Tolerance mm  Tolerance mm	VEL  : 1350  : 8.50 : ← 0.10  : 300  : 1.05 : ← 0.25  : 500  : 3.05 : ← 0.25  : 700  : 4.35 : ← 0.25	+++++++++++++++++++++++++++++++++++++++
GUIDE SLEEVE TRAN  Rated speed rpm guide sleeve travel mm Tolerance mm  Rated speed rpm guide sleeve travel mm Tolerance mm  Rated speed rpm guide sleeve travel mm Tolerance mm  Rated speed rpm guide sleeve travel mm Tolerance mm  Rated speed rpm guide sleeve travel mm Tolerance mm  Rated speed rpm guide sleeve travel mm Tolerance mm	VEL  : 1350  : 8.50 : ← 0.10  : 300  : 1.05 : ← 0.25  : 500  : 3.05 : ← 0.25  : 700  : 4.35 : ← 0.25	<del>+++++++++++++++++++++++++++++++++++++</del>
GUIDE SLEEVE TRAN  Rated speed rpm guide sleeve travel mm Tolerance mm  Rated speed rpm guide sleeve travel mm Tolerance mm  Rated speed rpm guide sleeve travel mm Tolerance mm  Rated speed rpm guide sleeve travel mm Tolerance mm  Rated speed rpm guide sleeve travel mm Tolerance mm  Rated speed rpm guide sleeve travel mm Tolerance mm	VEL  : 1350  : 8.50 : + 0.10  : 300  : 1.05 : + 0.25  : 500  : 3.05 : + 0.25  : 700  : 4.35 : + 0.25  : 1780	<del>+++++++++++++++++++++++++++++++++++++</del>
GUIDE SLEEVE TRAV Rated speed rpm guide sleeve travel mm Tolerance mm Rated speed rpm guide sleeve travel mm Tolerance mm Rated speed rpm guide sleeve travel mm Tolerance mm Rated speed rpm guide sleeve travel mm Tolerance mm Rated speed rpm guide sleeve travel mm Tolerance mm Rated speed rpm guide sleeve travel mm Tolerance mm	<ul> <li>VEL</li> <li>: 1350</li> <li>: 8.50</li> <li>: + 0.10</li> <li>: 300</li> <li>: 1.05</li> <li>: + 0.25</li> <li>: 500</li> <li>: 3.05</li> <li>: + 0.25</li> <li>: 700</li> <li>: 4.35</li> <li>: + 0.25</li> <li>: 1780</li> <li>: 13.50</li> </ul>	<del></del>
WITH GOVERNOR  GUIDE SLEEVE TRAN  Rated speed rpm guide sleeve travel mm  Tolerance mm  Rated speed rpm guide sleeve	VEL  : 1350  : 8.50 : + 0.10  : 300  : 1.05 : + 0.25  : 500  : 3.05 : + 0.25  : 700  : 4.35 : + 0.25  : 1780	<del></del>

Aneroid pressure hPa Del. quantity cm3/1000 strokes Tolerance cm3/1000 strokes Check tolerance cm3/1000s. Spreed Tolerance cm3/1000 strokes Check tolerance cm3/1000s.	: 1000 : 122.0 : + 1.0 : + 4.0 : 4.0 : 7.5
CONTROL LEVER	
control lever position degree tolerance degree	: 109.0 : +- 4.0
RATED SPEED rack travel mm Rated speed rpm Tolerance 1/min	: 13.30 : 1350 : + 5
rack travel mm Rated speed rpm Tolerance 1/min	: 4.00 : 1515 : +- 15
rack travel mm Tolerance mm Rated speed rpm	: 0.50 : + 0.50 : 1700
LOW IDLE	<del></del>
control lever position degree tolerance degree	: 64.0 : + 4.0
Setting point w/o	out bumper spring
Rated speed rpm	: 200
CRT mm min.	: > 6.00
Testing:	
Rated speed rpm rack travel mm Tolerance mm	: 300 : 5.50 : +- 0.20
Rated speed rpm	: 425

Rated speed rpm : 1300

		<del></del>		
TORQUE CONTROL Rated speed rpm	: 1300	-	FUEL DELIVERY CHA	RACTERISTICS
rack travel mm Tolerance mm	: + 0.05	<u> </u>	Aneroid pressure	: 1000
Rated speed rpm rack travel mm Tolerance mm	: 600 : 12.90	+	Rated speed rpm Del. quantity	: 600
		‡	cm3/1000 strokes Tolerance	
Rated speed rpm rack travel mm Tolerance mm	: 13.85	‡	cm3/1000 strokes Check tolerance cm3/1000s.	
Rated speed rpm	: 800	. ‡		
rack travel mm Tolerance mm	: 13.25 : + 0.10	‡	Aneroid pressure	: 1000
Rated speed rpm	: 700	‡	Rated speed rpm rack travel mm Tolerance mm	: 13.85
rack travel mm Tolerance mm	: + 0.10	Ī	Del. quantity cm3/1000 strckes	
ANEROID/ALTITUDE		<u> </u>	Tolerance cm3/1000 strokes	
COMPENSATOR TEST		-	Check tolerance cm3/1000s.	
SETTING		Ŧ	Aneroid pressure	
Rated speed rpm Pressure hPa	: 1000	Ī	hPa Rated speed rpm	: 1000 : 800
rack travel mm Tolerance mm		<u> </u>	Del. quantity cm3/1000 strokes Tolerance	: 99.5
Rated speed rpm Pressure hPa	500	Ī	cm3/1000 strokes Check tolerance	: +- 2.0
MEASUREMENT	•	‡	cm3/1000s.	: +- 5.0
Rated speed rpm	: 500	-	Aneroid pressure	: 1000
Pressure hPa rack travel mm	: 300 : 1.20	‡	Rated speed rpm Del. quantity	: 700
Tolerance mm	: + 0.05	‡	cm3/1000 strokes Tolerance	
Pressure hPa rack travel mm	: 600 : 3.60	‡	cm3/1000 strokes Check tolerance	: +- 2.0
Tolerance mm	: + 0.10	Ŧ	cm3/1000s.	: + 5.0
Start interlock			Aneroid pressure	-
Rated speed rpm Rated speed rpm	: > 100 : < 180	Ī	Rated speed rpm Del. quantity	500
Check	, , , , , , , , , , , , , , , , , , , ,	‡	cm3/1000 strokes Tolerance	: 30.0
speed 1/min Check	: > 80	‡	cm3/1000 strokes Check tolerance	: + 1.0
speed 1/min	: < 220	+	cm3/1000s.	: + 4.0

Spreed Tolerance cm3/1000 strokes : 4.0 Check tolerance

: 7.5 cm3/1000s.

## STARTING FUEL DELIVERY

Rated speed rpm : 100 rack travel mm : 15.00 : **←** 0.50 Tolerance mm Del. quantity cm3/1000 strokes : 136.5

Tolerance

cm3/1000 strokes : +- 10.0

Check tolerance

cm3/1000s. : +- 14.0

## LOW IDLE

Rated speed rpm : 300

5.50 Rack travel in mm: : **←** 0.20 Tolerance mm Del. quantity

13.0 cm3/1000 strokes :

Tolerance

cm3/1000 strokes : +- 2.5

Check tolerance

cm3/1000s. : **←** 5.0

Spreed Tolerance

4.5 cm3/1000 strokes :

Check tolerance

cm3/1000s. 7.5

#### Note remarks

Refer to Service Info for test and adjustment instructions. See microcard(s) W400/...

Edition Test oil

: 31.10.97 : ISO 4113

Combination No. : F 000 409 104

Injection pump

Pump designation : PES6P120A120RS7451

EP type number : F 000 400 202

Governor

Governer design. : RQV350...1100PA1375K

Governer no.

: F 000 420 501

Cust. part No. :

Customer-spec. information : CUMMINS Customer Motor CTAA Power KW : 162.0

### TEST BENCH REQUIREMENTS

: 3.2 Inlet line

Test oil inlet

40 temp. °C Tolerance "C : +- 2.0

Overflow valve : 2 417 413 093

Inlet press. bar : 1.5

Overflow quantity

min. L/h : 110 Tolerance l/h: + 20.0

Test nozzle holde

: 1 688 901 101 assembly

Opening pressure

: 208.5 Tolerance bar : + 1.5 Test Lines : 1 680 750 008

Outside diameter : 6.0

x inside diameter : 2.0

x length mm : 600

## REMARKS

(A) INJECTION PUMP SETTING VALUES

Set equal delivery quant.

per values \_\_\_\_

# BEGINNING OF DELIVERY

Test pressure bar : 26.0 Tolerance bar : + 1.0

Prestroke mm 3.30 : +- 0.05 Tolerance mm

Check

tolerance mm : +- 0.10

Rack travel in mm: 20.50 Tolerance mm : + 0.50

Firing order : 1-5-3-6-2-

: 0-60-120-180-240 Phasing

: -300

Tolerance : +- 0.30

Check

tolerance \*NW : **←** 0.75

Start of delivery mark

\*NW after s.o.d. : 7.70 : + - 0.10Tolerance

Check

: +- 0.75 tolerance NW

Barrel no. : 1

## BASIC SETTING

1100 Rated speed rpm :

J19

	1
Rack travel in mm: 13.30 Tolerance mm: + 0.05	Rated speed rpm : 420 guide sleeve travel mm : 4.28
Del. quantity cm3/1000 strokes : 164.0	Tolerance mm : + 0.25
	+ Rated speed rpm : 1380
Tolerance cm3/1000 strokes : +- 1.0	travel mm : 13.50 Tolerance mm : + 0.50
Check tolerance cm3/1000s. : + 4.0	GUIDE SLEEVE POSITION
Spreed	Total sective 7031110N
Tolerance cm3/1000 strokes : 5.0	control lever position degree : - 1 Rated speed rpm : 1200
Check tolerance : 9.0	Rack travel in mm: 12.30 Tolerance mm: + 2.00
Rated speed rpm : 350	FULL LOAD DELIVERY AT FULL LOAD STOP
Rack travel in mma: 4.80	+ Rated speed rpm : 1100
Tolerance min : + 0.10	Aneroid pressure
Del. quantity	+ hPa : 1500
cm3/1000 strokes : 18.0	- Del. quantity
Tolerance	+ cm3/1000 strokes : 164.0
cm3/1000 strokes : + 3.0 Check tolerance	+ Tolerance + cm3/1000 strokes : + 1.0
cm3/1000S. : +- 5.0	Check tolerance
Spreed	+ cm3/1000s. : $+$ 4.0
Tolerance	+ Spreed
cm3/1000 strokes : 7.0	+ Tolerance
Check tolerance cm3/1000S. : 11.0	+ cm3/1000 strokes : 5.0 + Check tolerance
tm3/10003	cm3/1000s. : 9.0
(B) SETTING OF INJECTION PUMP	‡
WITH GOVERNOR	CONTROL LEVER
GUIDE SLEEVE TRAVEL	+ control lever
	+ position degree : 69.0
Rated speed rpm : 1159	tolerance degree : +- 4.0
guide sleeve travel mm : 10.27	+ control lever
Tolerance mn : + 0.15	position degree : 123.0
	+ tolerance degree : +- 4.0
Rated speed rpm : 350	TATES COFFE
guide sleeve travel mm : 1.93	+ RATED SPEED + rack travel mm : 12.30
Tolerance mm : + 0.20	+ Rated speed rpm : 1145
	+ Tolerance 1/min : + 5
Rated speed rom : 710	+
guide sleeve	rack travel mm : 4.00
travel mm : 5.79 Tolerance mm : + 0.25	+ Rated speed rpm : 1240 + Tolerance 1/min : + 15
Tolerance mm : +- 0.25	T locetaine Dimin . T 13

Check speed 1/min rack travel mm Tolerance mm Rated speed rpm	: <b>←</b> 0.50	Rated speed rpm Pressure hPa rack ravel mm Tolerance mm Rated speed rpm	: 1500 : 13.30 : + 0.05
		Pressure hPa  MEASUREMENT	: -
LOW IDLE		Rated speed rpm	
control lever position degree tolerance degree	: 73.0 : + 4.0	Pressure hPa rack travel mm Tolerance mm	: 1.20 : + 0.20
control lever position degree tolerance degree	: 21.0 : + 4.0	Pressure hPa rack travel mm Tolerance mm	: 2.20
Setting point w/o	ut bumper spring	Start interlock	
Rated speed rpm		Rated speed rpm Rated speed rpm	
CRT mm min. Testing:	: > 7.70	Check speed 1/min	: > 80
Rated speed rpm rack travel mm Tolerance mm	: 350 : 4.80 : +- 0.10	Check speed 1/min	: < 300
Rated speed rpm		FUEL DELIVERY CHA	RACTERISTICS
TORQUE CONTROL Rated speed rpm rack travel mm Tolerance mm Rated speed rpm rack travel mm Tolerance mm Rated speed rpm rack travel mm Tolerance mm Rated speed rpm rack travel mm Tolerance mm	: 13.30 : +- 0.05 : 750 : 12.95 : +- 0.10 : 900 : 13.05 : +- 0.15 : 600	Aneroid pressure hPa Rated speed rpm Del. quantity cm3/1000 strokes Tolerance cm3/1000s. Spreed Tolerance cm3/1000 strokes Check tolerance cm3/1000 strokes Check tolerance cm3/1000 strokes Check tolerance cm3/1000s.	: 455.0 : + 3.0 : + 6.0
rack travel mm Tolerance mm	: 12.70 : + 0.15	rack travel mm Tolerance mm	
ANEROID/ALTITUDE COMPENSATOR TEST		Aneroid pressure hPa	: -
SETTING		Rated speed rpm Del. quantity cm3/1000 strokes	

Tolerance

cm3/1000 strokes : +- 2.0

Check tolerance

cm3/1000s. : + 4.0

## STARTING FUEL DELIVERY

Rated speed rpm 100 rack travel mm : 20,50 : **←** 0.50 Tolerance mm

Del. quantity

cm3/1000 strokes : 185.0

Tolerance

cm3/1000 strokes : + 20.0

Check tolerance

cm3/1000s. : 4- 24.0

## LOW IDLE

Rated speed rpm : 350

Rack travel in mm: 4.80 : + 0.10 Tolerance ma

Del. quantity cm3/1000 strokes : 18.0

Tolerance

cm3/1000 strokes : + 3.0

Check tolerance

: +- 5.0 cm3/1000S.

Spreed

Tolerance

cm3/1000 strokes : 7.0

Check tolerance

cm3/100US. 11.0

### Note remarks

Refer to Service Info for test and adjustment instructions. See microcard(s) W400/...

: 18.11.97 Edition : ISO 4113 Test oil

Combination No. : F 000 409 105

Injection pump

Pump designation : PES6P120A120RS7350 . EP type number : 0 412 726 921

Governor

Governer design. : RQV400...1150PA1376K

Governer no. : F 000 420 502

Cust. part No. : 3933298

Customer-spec. information Customer : CUMMINS Motor : 6BTAA Power KW : 145.0

### TEST BENCH REQUIREMENTS

Inlet line : 3.2

Test oil inlet

temp. °C : + 2.0 Tolerance °C

Overflow valve : 2 417 413 093

Inlet press. bar : 2.0 : **←** 0.1 Tolerance bar

Test nozzle holde

: 1 688 901 103 assembly

Opening pressure

208.5 bar Tolerance bar : + 1.5

Test lines : 1 680 750 015

Outside diameter : 6.0

x inside diameter: 3.0 600 x length no :

### REMARKS

(A) INJECTION PUMP SETTING VALUES

Set equal delivery quant.

per values \_\_\_\_

## BEGINNING OF DELIVERY

26.0 Test pressure bar : Tolerance bar : + 1.0

Prestroke mm : 3.60 : + 0.05 Tolerance mm Check

tolerance mm : +- 0.10

Rack travel in mm : 12.50 Tolerance mm : + 0.50

Firing order : 1-5-3-6-2-

Phasing : 0-60-120-180-240

: -300

Start of delivery mark

\*NW after s.o.d. : 5.75 : +- 0.50 Tolerance

Check

tolerance °NW : **←** 0.75

Barrel no. : 1

## BASIC SETTING

Rated speed rpm : 1150

Rack travel in mm: 14.00 Tolerance mm :  $\leftarrow$  0.05

Del. quantity cm3/1000 strokes : 167.5

J23

4	- Rated speed rpm : 1500
Tolerance	guide sleeve
cm3/1000 strokes : + 1.0	travel mm : 9.40
	Tolerance mm : $\leftarrow$ 0.20
Check tolerance cm3/1000s. : +- 4.0	•
CR5/10003. : +- 4.0	FULL LOAD DELIVERY AT FULL LOAD STOP
Spreed	· · · · · · · · · · · · · · · · · · ·
-	- Rated speed rpm : 1150
Tolerance	- Aneroid pressure
cm3/1000 strokes : 8.0	- hPa : 800
Check tolerance	- Del. quantity - cm3/1000 strokes : 167.5
cm3/1000s. : 12.0	- Tolerance
12.0	- cm3/1000 strokes : +- 1.0
	- Check tolerance
	-  cm3/1000s. : +- 4.0
Raited speed rpm : 420	- Spreed
40	Tolerance
Rack travel in mm : 6.10 Tolerance mm : + 0.20	- cm3/1000 strokes : 8.0
Tolerance mm : +- 0.20 + Del. quantity	- Check tolerance - cm3/1000S. : 12.0
cm3/1000 strokes : 13.0	- CHD/10003: . 12.0
Tolerance	_
cm3/1000 strokes : + 3.0	
Check tolerance	- CONTROL LEVER
cm3/1000s. : + 5.0	
Spreed	- control lever
Tolerance	- position degree : 118.0
cm3/1000 strokes : 4.0	- tolerance degree : +- 6.0
cm3/1000s. : 8.0	- RATED SPEED
	- rack travel mm : 13.00
+	- Rated speed rpm : 1300
(B) SETTING OF INJECTION PUMP	- Tolerance 1/min : + 15
WITH GOVERNOR	- Check
	- speed 1/min : +- 20
GUIDE SLEEVE TRAVEL	- rack travel mm : 4.00
SOUND SEEDEN. FINANCE	- Rated speed rpm : 1465
Rated speed rpm : 1250	- Tolerance 1/min : + 5
guide sleeve	- Check
travel mm : 7.10	- speed 1/min : + 10
Tolerance mm : + 0.10	- rack travel mm : 0.50
Rated speed rpm : 400	- Tolerance mm : +- 0.50
guide sleeve	Rated speed rpm : 1550
travel mm : 1.50	•
Tolerance mm : + 0.10	_
Rated speed rpm : 800	LOUITNE
guide sleeve travel mm : 4.50	- LOW IDLE
travel mm : 4.50 - Tolerance mm : + 0.20 -	- -
TO COLOR HAIR TO COLOR	- control lever
Rated speed rpm : 550	- position degree : 72.0
guide sleeve	tolerance degree : +- 6.0
travel mm : 3.30	Control Loven difficulties
Tolerance mm : + 0.20	- Control lever difference - Grad : 46.0
1	- Grau : 40.0

tolerance degree	: ← 6.0
Setting point w/o	out bumper spring
Rated speed rpm	: 300
CRT mm main.	: > 8.90
Testing:	
Rated speed rpm rack travel mm Tolerance mm	: 420 : 6.10 : + 0.20
Rated speed rpm	: 420
TORGUE CONTROL Rated speed rpm rack travel mm Tolerance mm	
Rated speed rpm rack travel mm Tolerance mm	: 800 : 12.60 : + 0.20
Rated speed rpm rack travel mm Tolerance mm	: 1250 : 14.00 : + 0.10
ANEROID/ALTITUDE COMPENSATOR TEST	
SETTING	
Rated speed rpm Pressure hPa rack travel mm Tolerance mm	: 1150 : 800 : 14.00 : +- 0.05
Rated speed rpm Pressure hPa	: 1150 : -
MEASUREMENT	
Rated speed rpm	: 1150
Pressure hPa rack travel mm Tolerance mm	: 250 : 1.10 : ← 0.20
Pressure hPa rack travel mm Tolerance mm	: 470 : 3.10 : ← 0.05
Start interlock	

Rated speed rpm	: > 100
Rated speed rpm	: < 325
• 1	
Check speed 1/min	. > 00
Check	: > 80
speed 1/min	: < 335
	•
FUEL DELIVERY CHA	RACTERISTICS
Aneroid pressure	
hPa	: 800
Rated speed rpm	: 800
Del. quantity	
cm3/1000 strokes	: 141.0
Tolerance	
cm3/1000 strokes	: <del>+</del> 3.0
Check tolerance	
cm3/1000s. Spreed	: +- 6.0
Tolerance	
cm3/1000 strokes	: 8.0
Check tolerance	. 0.0
cm3/1000s.	: 12.0
	~
rack travel mm	: 14.00
Tolerance mm	: + 0.10
Aneroid pressure	
hPa	•
Rated speed rpm	: 1150
Del. quantity	
cm3/1000 strokes	: 80.5
Tolerance	
cm3/1000 strokes	: <del></del> 2.0
Check tolerance	
cm3/1000s.	: +- 4.0
STARTING FUEL DEL	IVERY
Rated speed rpm	: 100
rack travel mm	: 13.75
Tolerance mm	: + 0.50
Del. quantity	
cm3/1000 strokes	: 155.0
Tolerance	
cm3/1000 strokes	: +- 20.0
Check tolerance	
cm3/1000s.	: <del> 25.0</del>

LOW IDLE

Rated speed rpm	:		420
Rack travel in mma Tolerance mma Del. quantity	:	+	6.10 0.20
cm3/1000 strokes	:		13.0
Tolerance cm3/1000 strokes	:	+-	3.0
Check tolerance cm3/1000s. Spreed	:	+-	5.0
Tolerance cm3/1000 strokes Check tolerance	:		4.0
cm3/1000s.	:		8.0

#### Note remarks

Refer to Service Info for test and adjustment instructions. See microcard(s) W400/...

Edition : 26.11.97 Test oil : ISO 4113

Combination No. : F 000 409 106

Injection pump

Pump designation : PES6P120A120RS7416 EP type number : 0 412 726 959

Governor

Governer design. : RQV400...1250PA1378K

Governer no. : F 000 420 503

Cust. part No. : 3933297

Customer-spec. information Customer : CUMMINS Motor : 63TA-A Power KW : 130.0

## TEST BENCH REQUIREMENTS

Inlet line : 3.2

Test oil inlet

temp. °C : +- 2.0 Tolerance °C

Overflow valve : 2 417 413 093

Inlet press. bar : 2.0 Tolerance bar : + 0.1

Test nozzle holde

: 1 688 901 103 assembly

Opening pressure

208.5 Tolerance bar : +- 1.5

Test Lines : 1 680 750 015

Outside diameter : 6.0

x inside diameter: 3.0 x length man : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES

Set equal delivery quant.

per values \_\_\_\_\_

BEGINNING OF DELIVERY

Test pressure bar : Tolerance bar : +- 1.0

Prestroke mm : 3.60 : **←** 0.05 Tolerance mm Check

tolerance mm :  $\leftarrow$  0.10

Rack travel in mm: 10.50 Tolerance mm : + 1.50

Firing order : 1-5-3-6-2-

: 4

Phasing : 0-60-120-180-240

: -300

Start of delivery mark

\*NW after s.o.d. : 6.25 Tolerance : +- 0.50

Check

tolerance \*NW : +- 0.75

Barrel no. : 1

BASIC SETTING

Rated speed rpm : 1250

Rack travel in mm: 13.65

Tolerance mm : +- 0.05

Del. quantity cm3/1000 strokes : 160.5

+	Rated speed rpm : 1690
Tolerance	guide sleeve
cm3/1000 strokes : + 1.0 +	travel mm : 11.50
	Tolerance mm : +- 0.50
Check tolerance + 4.0 +	
(1857 70005.	FULL LOAD DELIVERY AT FULL LOAD STOP
Spreed	THE COMP PECIFER THE POST COMP COMP
+	Rated speed rpm : 1250
Tolerance	Aneroid pressure
cm3/1000 strokes : 8.0	hPa : 800
Check tolerance	Del. quantity cm3/1000 strokes : 160.5
cm3/1000s. : 12.0	Tolerance
1	cm3/1000 strokes : +- 1.0
	Check tolerance
+	cm3/1000s. : +- 4.0
Rated speed rpm : 420	Spreed Tolerance
Rack travel in mag: 6.00	cm3/1000 strokes : 8.0
Tolerance mm : + 0.10	Check tolerance
Del. quantity	cm3/1000s. : 12.0
cm3/1000 strokes : 15.0	
Tolerance	
cm3/1000 strokes : + 3.0	CONTROL LEVER
Check tolerance + 5.0 +	CONTROL LEVER
Spreed	control lever
Tolerance	position degree : 117.0
cm3/1000 strokes : 4.0 +	tolerance degree : + 6.0
Check tolerance	DATE: 45 mg
cm3/1000s. : 8.0	RATED SPEED rack travel mm : 12.60
I	rack travel mm : 12.60 Rated speed rpm : 1325
(B) SETTING OF INJECTION PUMP	Tolerance 1/min : + 15
WITH GOVERNOR +	
+	rack travel mm : 4.00
MITTE OF PRINCE TRANSPIRE	Rated speed rpm : 1480 Tolerance 1/min : +- 5
GUIDE SLEEVE TRAVEL	Tolerance 1/min : +- 5
Rated speed rpm : 1329	rack travel mm : 0.50
quide sleeve	Tolerance mm : + 0.50
travel mm : 7.83	Rated speed rpm : 1550
Tolerance mm : + 0.15	
Rated speed rpm : 400	
guide sleeve	
travel mm : 1.44	LOW IDLE
Tolerance mm : + 0.20 +	
+	
Rated speed rpm : 939	control lever position degree : 71.0
guide sleeve travel mm : 5.18	tolerance degree : + 6.0
Tolerance mm : + 0.25	total articla degree a visit of
+	Control lever difference
Rated speed rpm : 640 +	Grad : 46.0
guide sleeve	tolerance degree : +- 6.0
travel mm : 3.56 + Tolerance mm : + 0.25 +	Setting point w/out bumper spring
Toterance mm : T 0.25	second bottle whose politices should
r	

300 Rated speed rpm : CRT mm min. :> 5.80 Check speed 1/min Testina: Rated speed rpm : 420 rack travel mm 5.0C : +- 0.10 Tolerance mm Rated speed rpm : 425 Del. quantity TORQUE CONTROL Rated speed rpm : 1250 Tolerance rack travel mm : 13.65 Tolerance mm : + 0.05 Rated speed rom : 800 Spreed rack travel mm : 11.85 Tolerance : + 0.10 Tolerance mm Rated speed rpm : 500 rack travel mm : 11.60 cm3/1000s. : +- 0.20 Tolerance mm ANEROID/ALTITUDE COMPENSATOR TEST SETTING Del. quantity Rated speed rpm : 1250 : 800 : 13.65 Pressure hPa Tolerance rack travel mm : + 0.05 Tolerance mm cm3/1000s. Rated speed rpm : 1250 Pressure hPa **MEASUREMENT** Rated speed rpm : 1250 180 Pressure hPa : rack travel mm 1.10 : + 0.05 Tolerance mm 340 Pressure hPa : rack travel mm 3.30 Tolerance mm : + 0.20 Tolerance cm3/1000s. Start interlock 100 Rated speed rpm :> Rated speed rpm : < 280

Check speed 1/min : > 80 : < 290 FUEL DELIVERY CHARACTERISTICS Aneroid pressure 800 Rated speed rpm : 800 cm3/1000 strokes : 131.5 cm3/1000 strokes : +- 3.0 Check tolerance cm3/1000s. : +- 6.0 cm3/1000 strokes : 8.0 Check tolerance : 12.0 rack travel mm : 11.60 Tolerance mm :  $\leftarrow$  0.20 Aneroid pressure Rated speed rpm : 1250 cm3/1000 strokes : 88.0 cm3/1000 strokes : +- 1.0 Check tolerance : +- 4.0 STARTING FUEL DELIVERY Set starting CRT at K-cam. Rated speed rpm : 100 rack travel mm : 14.10 : **←** 0.50 Tolerance mm Del. quantity cm3/1000 strokes : 155.0 cm3/1000 strokes : +- 20.0 Check tolerance : +- 25.0

LOW IDLE

Rated speed rpm	:		420
Rack travel in mm Tolerance mma Del. quantity	:	+-	6.00 0.10
cm3/1000 strokes Tolerance	:		15.0
cm3/1000 strokes Check tolerance	:	+-	3.0
cm3/1000s. Spreed	:	+-	5.0
Tolerance cm3/1000 strokes Check tolerance	:		4.0
cm3/1000s.	:		8.0

#### Note remarks

Refer to Service Info for test and adjustment instructions. See microcard(s) W400/...

Edition Test oil

: 29.01.98 : ISO 4113

Combination No. : F 000 409 201

Injection pump

Pump designation : PES6A95D410RS2918 EP type number : F 000 400 400

6overnor

Governer design. : RQV300...1300AB1324

Governer no. : F 000 420 301

Cust. part No. : 3760747202

Customer-spec. information

Customer : MBB

: OM 366 A

Motor

Power KW

: 125.0

### TEST BENCH REQUIREMENTS

Inlet line

: 4.1

Test oil inlet

temp. °C

40

Tolerance °C

: + 2.0

Overflow valve : 1 419 992 198

Inlet press. bar : 1.5

Test nozzle holde

assembly

: 0 681 343 009

Opening pressure

bar

: 173.5

Tolerance bar

: **←** 1.5

Test lines : 1 680 750 015

Outside diameter : 6.0

x inside diameter: 3.0 x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES

Set equal delivery quant.

per values \_\_\_\_\_

BEGINNING OF DELIVERY

Test pressure bar : 26.0

Tolerance bar : + 1.0

Prestroke mm

3.05

Tolerance mm

: +- 0.05

Check

tolerance mm

: + 0.10

Rack travel in mm: 10.50

Tolerance mm

: + 1.50

Firing order

: 1-5-3-6-2-

: 4

Phasing

: 0-60-120-180-240

: -300 : +- 0.50

Tolerance Check

tolerance \*NW : ← 0.75

BASIC SETTING

Rated speed rpm : 1300

Rack travel in mm: 11.25

Tolerance mm

: **←** 0.05

Del. quantity

cm3/1000 strokes : 81.0

Tolerance

cm3/1000 strokes : + 1.0

Check tolerance

cm3/1000s.

: +- 3.0

Spreed

Tolerance cm3/1000 strokes	: 3.5
Check tolerance cm3/1000s.	: 8.0
Rated speed rpm	: 300
Rack travel in mm	9.20
Tolerance mm	: + 0.10
Del. quantity	
cm3/1000 strokes Tolerance	: 19.0
cm3/1000 strokes	: <del>+</del> 2.0
Check tolerance	
cm3/1000s. Spreed	: +- 4.5
Tolerance cm3/1000 strokes Check tolerance	: 5.5
cm3/1000s.	: 9.0
GUIDE SLEEVE TRAV	/EL
Rated speed rpm	: 1500
guide sleeve	
travel mm Tolerance mm	: 8.95 : +- 0.05
10001 01100 1111	0.05
Rated speed rpm	: 300
guide sleeve travel mm	. 4.05
Tolerance mm	: 1.05 : +- 0.25
Rated speed rpm	: 500
guide sleeve travel mm	: 2.55
Tolerance mm	: 2.55 : +- 0.25
Dahad aread	
Rated speed rpm guide sleeve	: 750
travel mm	: 4.65
Tolerance mm	: + 0.10
GUIDE SLEEVE POSI	TION
control lever	
position degree Rated speed rpm	: - 1
kated speed rpm	: 1460
Rack travel in mm	16.50

Tolerance mm	: <b>←</b> 1.30
FULL LOAD DELIVER	Y AT FULL LOAD STOP
Rated speed rpm Aneroid pressure	: 1300
hPa	: 800
Del. quantity cm3/1000 strokes	: 81.0
Tolerance cm3/1000 strokes	: +- 1.0
Check tolerance	
cm3/1000s. Spreed	: +- 3.0
Tolerance cm3/1000 strokes	: 3.5
Check tolerance	
cm3/1000s.	: 8.0
CONTROL LEVER	
control lever	444.0
position degree tolerance degree	: 111.0 : + 4.0
RATED SPEED	
rack travel mm Rated speed rpm	: 10.20 : 1365
Tolerance 1/min	: + 5
rack travel mm	: 4.00
Rated speed rpm Tolerance 1/min	: 1505 :
rack travel mm	: 0.50
Tolerance mm	: +- 0.50
Rated speed rpm	: 1040
LOW IDLE	
control lever position degree tolerance degree	: 73.0 : + 4.0
Setting point w/o	out bumper spring
Rated speed rpm	: 100
CRT mm min.	: > 9.80
Testing:	
Rated speed rpm	: 300

rack travel mm Tolerance mm		‡
Rated speed rpm	: 585	FUEL DELIVERY CHARACTERISTICS
		- rack travel num · 11 50
TORQUE CONTROL		rack travel mm : 11.50 Tolerance mm : +- 0.05
Rated speed rpm	: 1300	1
ack travel mm		
olerance mm	: + 0.05	Aneroid pressure
Rated speed rpm	• 750	+ hPa : 800 + Rated speed rpm : 800
ack travel ma	12.05	L hel quantity
rack travel mm Tolerance mm	· + 0.05	Del. quantity cm3/1000 strokes : 81.0
Occi of the link	. 1 13.03	+ Tolerance
ested encod me	• 050	cm3/1000 strokes : +- 2.0
rack though me	. 11 50	
Rated speed rpm rack travel mm Tolerance mm	, 11.2U	+ Check tolerance + cm3/1000s. : +- 4.0
orenance um	0.05	
Satad	. one	+ Spreed
Rated speed ripm		Tolerance
rack travel mm	12.05	+ cm3/1000 strokes : 5.0
Tolerance mm	: +- 0.05	+ Check tolerance
		- cm3/1000s. : 8.0
ANEROID/ALTITUDE		
COMPENSATOR TEST		Aneroid pressure
		hPa : -
		Rated speed rpm : 500
SETTING		l Dal guandado.
		+ cm3/1000 strokes : 42.5
detect encodence	. 500	+ Tolerance 42.3
Rated speed rpm	. 200 . 900	- cm3/1000 strokes : +- 1.0
Pressure hPa	. 42.00	•
rack travel mm Tolerance mm	12.00	+ Check tolerance
ioterance min	: +- 0.05	- cm3/1000s. : +- 3.0
المحمدة	. 500	+ Spreed
Rated speed rpm	: DIJU	† Tolerance
Pressure hPa	: -	- cm3/1000 strokes : 3.5
		+ Check tolerance
MEASUREMENT		cm3/1000s. : 8.0
Rated speed rpm	: 500	
Pressure hPa	: 550	STARTING FUEL DELIVERY
ack travel mm	: 1.80	+
olerance mm	: +- 0.10	Rated speed rpm : 100
<del></del>		rack travel mm : 13.50
Pressure hPa	: 350	Tolerance mm : + 0.10
ack travel mm	: 0.80	+ Del. quantity
olerance mm	: + 0.10	- cm3/1000 strokes : 78.0
CC, GIOC IIII	0.10	Tolerance
		+ cm3/1000 strokes : +- 7.5
Start interlock		+ Check tolerance
ocare micercock		+ cm3/1000s. : + 10.0
erand and	. \ 100	T (1110) 10003
Rated speed rpm	: > 100	Ţ
Rated speed rpm	: < 220	Ī
		1
Check		
	: > 80	+ LOW IDLE
heck peed 1/min heck	: > 80	LOW IDLE
peed 1/min	: > 80 : < 240	LOW IDLE  Rated speed rpm : 300

K05

Rack travel in mm	:		9.20
Tolerance num	:	+-	0.10
Del. quantity			
cm3/1000 strokes	:		19.0
Tolerance			
cm3/1000 strokes	:	+	2.0
Check tolerance			
cm3/1000s.	:	+-	4.5
Spreed			
Tolerance			
cm3/1000 strokes	:		5.5
Check tolerance			
cm3/1000s.	:		9.0

### Note remarks

Refer to Service Info for test and adjustment instructions. See microcard(s) W400/...

Test oil Edition

: 05.02.98 : ISO 4113

Combination No. : 0 400 866 214

Injection pump

Pump designation : PES6A100D320/3RS2691

EP type number : 9 410 230 030

Governor

Governer design. : RSV450...1100A0C2190

: -84R

Governer no.

: 0 420 233 323

Cust. part No. : 3921095

Customer-spec. information Customer : CDC Motor : 60T330

Power KW

: 134.2

#### TEST BENCH REQUIREMENTS

Inlet line : 3.2

Test oil inlet

temp. °C

Tolerance °C

: + 2.0

Overflow valve : 1 417 413 047

Inlet press. bar : 1.5

Test nozzle holde assembly : 1 688 901 101

Opening pressure

bar

: 208.5

Tolerance bar : + 1.5

Test lines : 1 680 750 014

Outside diameter : 6.0

x inside diameter:

x Length mm :

REMARKS

(A) INJECTION PUMP SETTING VALUES

Set equal delivery quant.

per values \_\_\_\_\_

BEGINNING OF DELIVERY

Test pressure bar: 17.0

Tolerance bar : + 1.0

2.0

600

Prestroke mm : 2.85
Tolerance mm : + 0.05

Check

tolerance mm :  $\leftarrow$  0.10

Rack travel in mm: 10.50

Tolerance ma

: + 1.50

Firing order : 1-5-3-6-2-

: 4

Phasing

: 0-60-120-180-240

Start of delivery blocking

\*NW after s.o.d. : 11.00

Tolerance :  $\leftarrow$  0.50

Check

tolerance \*NW : +- 0.75

Barrel no. : 1

BASIC SETTING

Rated speed rpm : 1100

Rack travel in mm: 11.25

Tolerance mm : +- 0.05

Del. quantity tom3/1000 strokes : 104.5	Aneroid pressure hPa : - Del. quantity
Tolerance cm3/1000 strokes : +- 1.0	cm3/1000 strokes : 104.5 Tolerance
Check tolerance	cm3/1000 strokes : + 1.0 Check tolerance
cm3/1000s. : +- 3.0	cm3/1000s. : +- 3.0 Spreed
Spreed	Tolerance cm3/1000 strokes : 4.0
Tolerance cm3/1000 strokes : 4.0	Check tolerance cm3/1000s. : 6.5
Check tolerance cm3/1000s. : 6.5	CONTROL LEVER
‡	control lever
Rated speed rpm : 450	position degree : 103.0 tolerance degree : + 4.0
Rack travel in mm: 5.80	toterance degree . +- 4.5
Tolerance mm : + 0.10 +	RATED SPEED
Del. quantity + cm3/1000 strokes : 18.5 +	rack travel mm : 10.20 Rated speed rpm : 1145
Tolerance	Tolerance 1/min : +- 5
cm3/1000 strokes : +- 2.0 +	
Check tolerance +	rack travel mm : 4.00
cm3/1000s. : +- 4.5	Rated speed rpm : 1225 Tolerance 1/min : +- 5
Tolerance	Total and Committee
cm3/1000 strokes : 6.0	rack travel mm : 0.85
Check tolerance +	Tolerance mm : + 0.55
cm3/1000s. : 8.0	Rated speed rpm : 1350
<del> </del>	rack travel mm : 4.00
(B) SETTING OF INJECTION PUMP	Rated speed rpm : 1230
WITH GOVERNOR	Tolerance 1/min : +- 15
GUIDE SLEEVE POSITION	LOW IDLE
control lever	
position degree : - 3	control lever
Rated speed rpm : 800	position degree : 85.0 tolerance degree : +- 4.0
Rack travel in mm: 0.50	COCCI GING GOBI GO . TIO
Tolerance mm : + 0.20	Control Lever difference
dovernor enring	Grad : 18.0 tolerance degree : +- 4.0
governor spring + pre-tension +	toterante degree : +- 4.0
click setting x : 4.25	Setting point w/out bumper spring
	Rated speed rpm : 450
FULL LOAD DELIVERY AT FULL LOAD STOP	rack travel mm : 5.30 Tolerance mm : +- 0.10
Rated speed rpm : 1100	roterance num : + U.TU
The speed that the state of the	Rated speed rpm : 100

CRT mm min. : > 19.00

Testing:

Rated speed rpm : 450 rack travel mm : 5.80 Tolerance mm : + 0.10

TORQUE CONTROL

Rated speed rpm : 1100 rack travel mm : 11.25 Tolerance mm : + 0.05

Rated speed rpm : 750 rack travel mm : 12.10 Tolerance mm : + 0.10

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure

hPa : - 750

Del. quantity

cm3/1000 strokes : 113.5

Tolerance

cm3/1000 strokes : +- 2.0

Check tolerance

cm3/1000s. : + 4.0

STARTING FUEL DELIVERY

Rated speed rpm : 100 rack travel mm : 20.50 Tolerance mm : → 0.50

Del. quantity

cm3/1000 strokes : 148.0

Tolerance

cm3/1000 strokes : + 10.0

Check tolerance

cm3/1000s. : + 15.0

LOW IDLE

Rated speed rpm : 450

Rack travel in mm: 5.80 Tolerance mm: + 0.10

Del. quantity

cm3/1000 strokes : 18.5

Tolerance

cm3/1000 strokes : +- 2.0

Check tolerance

cm3/1000s. : + 4.5

Spreed

Tolerance

cm3/1000 strokes : 6.0

Check tolerance

cm3/1000s. : 8.0

End of test specification sheet

K09

#### Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 05.02.98 Test oil : ISO 4113

Combination No. : 0 402 076 817

Injection pump

Pump designation : PES6P120A720RS3367 : EP type number : 0 412 026 788

Governor

Governer design. : RSV525...1000P2A640

: -1

Governer no. : 0 421 833 604

Cust. part No. : RE71286

Customer—spec. information
Customer : DEERE
Motor : 6081HT001
Power KW : 186.0

#### TEST BENCH REQUIREMENTS

Inlet line : 4.2

Test oil inlet

temp. °C : 40
Tolerance °C : +- 2.0

Overflow valve : 1 457 413 010

Inlet press. bar : 2.0 Tolerance bar : ← 0.1

Test nozzle holde

assembly : 1 688 901 101

Opening pressure

bar : 208.5 Tolerance bar : + 1.5

Test lines : 1 680 750 015

Outside diameter : 6.0

x inside diameter: 3.0 x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES

Set equal delivery quant.

per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 17.0 Tolerance bar : + 1.0

Prestroke mm : 3.60 Tolerance mm : + 0.05

Check

tolerance mm :  $\leftarrow$  0.10

Rack travel in mm : 10.50 Tolerance mm : + 1.50

Firing order : 1-5- 3- 6- 2-

: 4

Phasing : C-60-120-180-240

: -300

Start of delivery mark

\*NW after s.o.d. : 7.50 Tolerance : +- 0.50

Check

tolerance \*NW : + 0.75

Barrel no. : 1

Beginning of delivery differende

and maximum rack

travel : 14.00 Difference \* CS : 2.50

BASIC SETTING

Rated speed rpm : 1000

Rack travel in mm Tolerance mm	: 13.00 : +- 0.05
Del. quantity cm3/1000 strokes	: 174.5
Tolerance cm3/1000 strokes	: + 1.0
Check tolerance cm3/1000s.	: + 3.0
Spreed	
Tolerance cm3/1000 strokes	: 4.0
Check tolerance cm3/1000s.	: 6.5
Rated speed rpm	: 525
Rack travel in mm Tolerance mm	: 5.10 : + 0.10
Del. quantity cm3/1000 strokes	: 26.5
Tolerance cm3/1000 strokes	: +- 2.0
Check tolerance cm3/1000s. Spreed	: +- 4.5
Tolerance	
cm3/1000 strokes Check tolerance	: 6.0
cm3/1000s.	: 8.0
(B) SETTING OF IN. WITH GOVERNOR	JECTION PUMP
GUIDE SLEEVE POSI	TION
control lever position degree Rated speed rpm	: - 3 : 800
Rack travel in mm Tolerance mm	: 0.50 : ← 0.20
governor spring pre-tension click setting x	: 3.00

FULL LOAD DELIVER	Y AT FULL LOAD STOP
Rated speed rpm Aneroid pressure	: 1000
hPa Del. quantity	: 1400
cm3/1000 strokes Tolerance	: 174.5
cm3/1000 strokes	: <b>←</b> 1.0
Check tolerance cm3/1000S. Spreed	: <b>←</b> 3.0
Tolerance	
cm3/1000 strokes Check tolerance	: 4.0
cm3/1000s.	: 6.5
CONTROL LEVER	
control lever position degree tolerance degree	
RATED SPEED rack travel mm Rated speed rpm Tolerance 1/min	: 12.00 : 1070 : +- 5
rack travel mm Rated speed rpm Tolerance 1/min	: 4.00 : 1115 : + 5
rack travel mm Tolerance mm Rated speed rpm	: 0.85 : +- 0.55 : 1200
rack travel mm Rated speed rpm Tolerance 1/min	: 4.00 : 1115 : + 15
LOW IDLE	
control lever	

control lever
position degree : 70.0
tolerance degree : + 4.0

Setting point w/out bumper spring

Rated speed rpm : 525 rack travel mm : 4.60 Tolerance mm : + 0.10

Rated speed rpm	: 100	+ Check tolerance + cm3/1000s. : + 4.0
CRT man min.	: > 19.00	1 4.0
Testing:		Aneroid pressure
		+ hPa :
Rated speed rpm		+ Rated speed rpm : 500
rack travel mm	: 5.10	+ Del. quantity
Tolerance mm		+ cm3/1000 strokes : 165.0
		+ Tolerance
		+ cm3/1000 strokes : +- 2.0
TORRUS CONTROL		
TORQUE CONTROL		+ Check tolerance
Rated speed rpm	: 1000	+ cm3/1000s. : $+$ 4.0
rack travel mm	: 13.00	+
Tolerance am	: ← 0.05	Ţ
Rated speed rpm	· 700	+ STARTING FUEL DELIVERY
rack travel mm	13.80	
Tolerance mm		T Batad anadama : 100
roterance mm	: - 0.10	Rated speed rpm : 100 rack travel mm : 20.50
		+ rack travel mm : 20.50
<del></del>	·	+ Tolerance mm : + 0.50
ANEROID/ALTITUDE		+ Del. quantity
COMPENSATOR TEST		+ cm3/1000 strokes : 105.0
		Tolerance
		+ cm3/1000 strokes : + 20.0
CETTAIC		
SETTING		+ Check tolerance
		+ cm3/1000s. : $+$ 25.0
Rated speed rpm	: 500	+
Pressure hPa	: 1400	+
		+
Rated speed rpm	: 500	
		LOW IDLE
Pressure hPa rack travel mm	12.25	LOW IDEE
rack travel ma	12.25	T Bakad and days 525
Tolerance mm	: <del>+-</del> 0.10	+ Rated speed rpm : 525
		†
MEASUREMENT		+ Rack travel in mm : 5.10
		$\rightarrow$ Tolerance mm : $\leftarrow$ 0.10
Rated speed rpm	: 500	+ Del. quantity
,		+ cm3/1000 strokes : 26.5
Pressure hPa	: 975	+ Tolerance
rack travel mm	13.40	+ cm3/1000 strokes : + 2.0
Tolerance mm	: +- 0.20	+ Check tolerance
		+ cm3/1000s. : + 4.5
Pressure hPa	: 830	+ Spreed
rack travel mm	: 12.70	+ Tolerance
Tolerance mm	: +- 0.05	+ cm3/1000 strokes : 6.0
		+ Check tolerance
		+ cm3/1000s. : 8.0
		1
ELEL DEL TUEDO CUI	ADACTEDICTICS	
FUEL DELIVERY CHA	HUNCIEKTO (170)	T
		T
- ·		†
Aneroid pressure		+
hPa	: 1400	+ End of test specification sheet
Rated speed rpm		+
Del. quantity	· · · · · · · · · · · · · · · · · · ·	1
	: 197.0	1
cm3/1000 strokes	. 177. <b>U</b>	T
Tolerance		
		Ť
cm3/1000 strokes	: +- 2.0	Ī

#### Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 11.02.98 Test oil : ISO 4113

Combination No. : 0 402 736 906

Injection pump

Pump designation : PES6P120A120RS7416 .

EP type number : 0 412 726 959

Governor

Governer design. : RQV400...1250PA1060

: -4K

Governer no. : 0 421 815 514

Cust. part No. : 3928146

Customer—spec. information Customer : CDC Motor : 6BTA-A Power KW : 130.0

### TEST BENCH REQUIREMENTS

Inlet line : 3.2

Test oil inlet

temp. °C : 40 Tolerance °C : + 2.0

Overflow valve : 2 417 413 093

Inlet press. bar : 2.0 Tolerance bar : + 0.1

Test nozzle holde

assembly : 1 688 901 103

Opening pressure

bar : 208.5 Tolerance bar : + 1.5

Test lines : 1 680 750 015

Outside diameter : 6.0

x inside diameter: 3.0 x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES

Set equal delivery quant.

per values \_\_\_\_\_

BEGINNING OF DELIVERY

Test pressure bar : 17.0 Tolerance bar : + 1.0

Prestroke mm : 3.60 Tolerance mm : + 0.05

Check

tolerance mm : + 0.10

Rack travel in mm : 10.50 Tolerance mm : +- 1.50

Firing order : 1-5-3-6-2-

: 4

Phasing : 0-60-120-180-240

: -300

Start of delivery blocking

\*NW after s.o.d. : 6.25 Tolerance : + 0.50

Check

tolerance \*NW : + 0.75

Barrel no. : 1

BASIC SETTING

Rated speed rpm : 1250

Rack travel in mm : 13.65
Tolerance mm : + 0.05

Del. quantity cm3/1090 strokes : 159.0	+ Tolerance mm : + 0.25
Tolerance cm3/1000 strokes : + 1.0	Rated speed rpm : 1690 guide sleeve travel mm : 11.50
Check tolerance cm3/1000s. : +- 4.0	Tolerance mm : + 0.50
Spreed	+ GUIDE SLEEVE POSITION
Tolerance cm3/1000 strokes : 8.0	control lever position degree : VH Rated speed rpm : 1390
Check tolerance cm3/1000s. : 12.0	Rack travel in mm: 12.60
Rated speed rpm : 420	FULL LOAD DELIVERY AT FULL LOAD STOP
Rack travel in mm: 6.00	Rated speed rpm : 1250  Aneroid pressure
Tolerance mm : +- 0.10 Del. quantity	+ hPa : 1200 + Del. quantity
cm3/1000 strokes : 15.0	+ cm3/1000 strokes : 159.0
cm3/1000 strokes : +- 3.0	Tolerance cm3/1000 strokes : + 1.0
Check tolerance cm3/1000s. : +- 5.0	t Check tolerance cm3/1000s. : + 4.0
Spreed Tolerance	+ Spreed + Tolerance
cm3/1000 strokes : 4.0	+ cm3/1000 strokes : 8.0
Check tolerance cm3/1000s. : 8.0	t Check tolerance t cm3/1000s. : 12.0
(B) SETTING OF INJECTION PUMP WITH GOVERNOR	CONTROL LEVER
GUIDE SLEEVE TRAVEL	control lever position degree : 120.0
Rated speed rpm : 1329	tolerance degree : +- 4.0
guide sleeve travel mm : 7.83	+ RATED SPEED + rack travel mm : 12.60
Tolerance mm : +- 0.15	Rated speed rpm : 1325  Tolerance 1/min : + 15
Rated speed rpm : 400 guide sleeve	+
travel mm : 1.44	rack travel mm : 4.00 + Rated speed rpm : 1475
Tolerance mm : +- 0.20	Tolerance 1/min : +- 5
Rated speed rpm : 939 guide sleeve	rack travel mm : 0.50 Tolerance mm : + 0.50
travel mm : 5.18	Rated speed rpm : 1550
Tolerance mm : + 0.25	‡
Rated speed rpm : 640 guide sleeve	+
travel mm : 3.56	+ LOW IDLE

control lever position degree : 73.5 tolerance degree : +- 4.0
Control lever difference Grad: 46.5 tolerance degree: +- 4.0
Setting point w/out bumper spring
Rated speed rpm : 300
CRT พล พาก. : > 5.80
Testing:
Rated speed rpm : 420 rack travel mm : 6.00 Tolerance mm : + 0.10
Rated speed rpm : 425
TORQUE CONTROL Rated speed rpm : 1250 rack travel mm : 13.65 Tolerance mm : + 0.05
Rated speed rpm : 800 rack travel mm : 11.85 Tolerance mm : + 0.10
Rated speed rpm : 500 rack travel mm : 11.60 Tolerance mm : ∹— 0.20
ANEROID/ALTITUDE COMPENSATOR TEST
SETTING
Rated speed rpm : 1250 Pressure hPa : 1200
Rated speed rpm : 1250 Pressure hPa : - rack travel mm : 10.30 Tolerance mm : + 0.20
MEASUREMENT
Rated speed rpm : 1250
Pressure hPa : 375 rack travel mm : 12.50 Tolerance mm : ← 0.30

Pressure hPa rack travel mm Tolerance mm	: 260 : 11.30 : + 0.20	
Start interlock		
Rated speed rpm Rated speed rpm	: > 200 : < 340	
Check speed 1/min Check	: > 190	
speed 1/min	: < 360	
FUEL DELIVERY CHA	RACTERISTICS	
Aneroid pressure hPa Rated speed rpm	: 1200 : 800	
Del. quantity cm3/1000 strokes	: 133.0	
Tolerance cm3/1000 strokes	: <del>+</del> 3.0	
Check tolerance cm3/1800s. Spreed	: +- 6.0	
Tolerance cm3/1000 strokes	: 8.0	
Check tolerance cm3/1000s.	: 12.0	
rack travel mm Tolerance mm	: 11.60 : + 0.20	
Aneroid pressure		
hPa Rated speed rpm	: - : 1250	
Del. quantity cm3/1000 strokes Tolerance	: 107.0	
cm3/1000 strokes Check tolerance	: + 1.0	
cm3/1000s.	: + 4.0	
STARTING FUEL DELIVERY		
Set starting CRT at K-cam.		

Rated speed rpm : 100 rack travel mm : 14.10 Tolerance mm :  $\leftarrow$  0.50

Del. quantity cm3/1000 strokes : 155.0

Tolerance

cm3/1000 strokes : + 20.0

Check tolerance

: **←** 25.0 cm3/1000s.

### LOW IDLE

Rated speed rpm : 420

Rack travel in mm: 5.90 : ← 0.10 Tolerance mm Del. quantity cm3/1000 strokes : 15.0

Tolerance

cm3/1000 strokes : +- 3.0

Check tolerance

cm3/1000s. 5.0

Spreed

Tolerance

cm3/1000 strokes : 4.0

Check tolerance

8.0 cm3/1000s.

#### Note remarks

Refer to Service Info for test and adjustment instructions. See microcard(s) W400/...

Edition : 05.02.98 Test oil : ISO 4113

Combination No. : 0 402 746 611

Injection pump

Pump designation : PES6P120A320RS7372 .

EP type number : 0 412 726 940

Governor

Governer design. : RQV250...1400PA1279K Governer no. : 0 421 815 508

Cust. part No. : 3866783

Customer-spec. information Customer : CDC : 6BTA Motor Power KW : 235.0

### TEST BENCH REQUIREMENTS

Inlet line : 3.2

Test oil inlet

temp. °C : 40
Tolerance °C : + 2.0

Overflow valve : 2 417 413 093

Inlet press. bar : 2.0 Tolerance bar : +- 0.1

Test nozzle holde

assembly : 1 688 901 103

Opening pressure

: 208.5 Tolerance bar : + 1.5

Test Lines : 1 680 750 015

Outside diameter : 6.0

x inside diameter: 3.0 x length mm : 600

### REMARKS

(A) INJECTION PUMP SETTING VALUES

Set equal delivery quant.

per values \_\_\_\_\_

### BEGINNING OF DELIVERY

Test pressure bar : 17.0 Tolerance bar : + 1.0

Prestroke mm : 4.00 Tolerance mm : + 0.05

Check

: **←** 0.10 tolerance mm

Rack travel in mm: 10.50 Tolerance mm : +- 1.50

Firing order : 1-5-3-6-2-

: 0-60-120-180-240 Phasing

: -300

Start of delivery blocking

\*NW after s.o.d. : 11.00 Tolerance :  $\leftarrow$  0.50

Check

tolerance \*NW : +- 0.75

Barrel no. : 1

## BASIC SETTING

Rated speed rpm : 1400

Rack travel in mm: 13.45 : **←** 0.05 Tolerance mm

Del. quantity cm3/1000 strokes : 186.5

K17

4	- Rated speed rpm : 1860
Tolerance	- guide sleeve
cm3/1000 strokes : + 1.0	- travel mm : 13.50
	Tolerance mm : +- 0.50
Check tolerance cm3/1000s. : ← 4.0	<u>-</u>
CHD7 (0005. : 4.0	- FULL LOAD DELIVERY AT FULL LOAD STOP
Spreed	L
-	- Rated speed rpm : 1400
Tolerance	- Aneroid pressure
cm3/1000 strokes : 8.0	- hPa : 1200
Charle de Language	- Del. quantity - cm3/1000 strokes : 186.5
Check tolerance cm3/1000s. : 12.0	- cm3/1000 strokes : 186.5 - Tolerance
12.0	- cm3/1000 strokes : +- 1.0
	- Check tolerance
	- cm3/1000s. : $+$ 4.0
Rated speed rpm : 300	- Spreed
Rack travel in mm: 7.00	- Tolerance - cm3/1000 strokes : 8.0
Tolerance mm : + 0.20	- Check tolerance
Del. quantity	- cm3/1000s. : 12.0
cm3/1000 strokes : 28.0	•
Tolerance	
cm3/1000 strokes : $\leftarrow$ 3.0	CONTROL LEUED
Check tolerance - 5.0 - 5.0	CONTROL LEVER
Spreed	- control lever
Tolerance -	position degree : 121.5
cm3/1000 strokes : 5.0	tolerance degree : + 4.0
Check tolerance	
cm3/1000s. : 8.0 -	- RATED SPEED
1	- rack travel mm : 12.80 - Rated speed rpm : 1465
(B) SETTING OF INJECTION PUMP	Tolerance 1/min : +- 5
WITH GOVERNOR	
	- rack travel mm : 6.80
	- Rated speed rpm : 1580
GUIDE SLEEVE TRAVEL	Tolerance 1/min : +- 15
Rated speed rpm : 1455	rack travel mm : 0.50
guide sleeve	Tolerance mm : + 0.50
travel mm : 9.16	- Rated speed rpm : 1725
Tolerance mm : + 0.15	-
Rated speed rpm : 275	<b>-</b>
Rated speed rpm : 275 - guide sleeve -	
travel mm : 1.39	- LOW IDLE
Tolerance mm : + 0.20	
	<b>-</b>
Rated speed rpm : 931	control lever
guide sleeve - travel man : 5.67 -	- position degree : 73.0 - tolerance degree : +- 4.0
Tolerance mm : + 0.25	- toterance degree . · 4.0
10001 1000 1000	Control lever difference
Rated speed rpm : 480 -	- Grad : 48.5
guide steeve	tolerance degree : +- 6.0
travel mm : 3.18	Softing point worth human caping
Tolerance mm : +- 0.25	Setting point w/out bumper spring
7	ı

200 Rated speed rpm CRT mm min. : > 8.60 Testing: Rated speed rom 300 : 7.00 rack travel mm Tolerance mm : + - 0.20Rated speed rpm : 350 TORQUE CONTROL 1400 Rated speed rom : 13.45 rack travel mm Tolerance mm : + 0.05Rated speed rpm : 1000 : 13,20 rack travel mm : + 0.10Tolerance mm Rated speed rpm 700 : 13.00 rack travel mm : + 0.20 Tolerance mm ANEROID/ALTITUDE COMPENSATOR TEST SETTING Rated speed rpm : 1400 Pressure hPa 1200 Rated speed rom 1000 Pressure hPa 9.65 rack travel mm : + 0.20Tolerance mm MEASUREMENT 1400 Rated speed rpm 620 Pressure hPa : 12.30 rack travel mm : + 0.20Tolerance mm 280 Pressure hPa rack travel mm 10.65 : + 0.20Tolerance mm Start interlock 100 Rated speed rpm :> Rated speed rpm : < 240

speed 1/min :> 80 Check speed 1/min : < 250 FUEL DELIVERY CHARACTERISTICS Aneroid pressure 1200 hPa Rated speed rpm 1000 Del. quantity cm3/1000 strokes : 178.0 Tolerance cm3/1000 strokes : +-3.0 Check tolerance cm3/1000s. 6.0 Spreed Tolerance cm3/1000 strokes : 8.0 Check tolerance 12.0 cm3/1000s. 13.00 rack travel mm : +- 0.20 Tolerance mm Aneroid pressure Rated speed rpm : 1000 Del. quantity cm3/1000 strokes : 98.5 Tolerance cm3/1000 strokes : +- 1.0 Check tolerance cm3/1000s. 3.0 STARTING FUEL DELIVERY Rated speed rpm 100 21.00 rack travel mm : : +- 0.50 Tolerance mm Del. quantity cm3/1000 strokes : 170.5 Tolerance cm3/1000 strokes : +- 20.0Check tolerance cm3/1000s. : +- 25.0 LOW IDLE Rated speed rpm : 300

Check

Rack travel in mm Tolerance mm	: +-	7.00 0.20
Del. quantity cm3/1000 strokes Tolerance	:	28.0
cm3/1000 strokes Check tolerance	: +-	3.0
cm3/1000s. Spreed	: +-	5.0
Tolerance cm3/1000 strokes Check tolerance	:	5.0
cm3/1000s.	:	8.0

#### Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 02.02.98 Test oil : ISO 4113

Combination No. : 9 400 030 734

Injection pump

Pump designation : PES4A95D320/3RS2880 EP type number : 9 410 037 214

Governor

Governer design. : RSV500...1100A0C847R

Soverner no. : 9 420 034 713

Cust. part No. : 3930153

Customer—spec. information Customer : CDC Motor : 48T3.9 Power KW : 74.5

### TEST BENCH REQUIREMENTS

Inlet line : 3.2

Test oil inlet

temp. °C : 40 Tolerance °C : + 2.0

Overflow valve : 1 417 413 047

Inlet press. bar : 2.0

Test nozzle holde

assembly : 1 688 901 101

Opening pressure

bar : 208.5 Tolerance bar : + 1.5

Test Lines : 1 680 750 014

Outside diameter : 6.0

x inside diameter: 2.0 x length mm : 600

**REMARKS** 

(A) INJECTION PUMP SETTING VALUES Set equal delivery quant.

per values \_\_\_\_\_

### BEGINNING OF DELIVERY

Test pressure bar : 17.0 Tolerance bar : + 1.0

Prestroke mm : 2.45
Tolerance mm : + 0.05

Check

tolerance mm : + 0.10

Rack travel in mm : 10.50 Tolerance mm : + 1.50

firing order : 1-3-4-2

Phasing : 0-90-180-270

Start of delivery blocking

\*NW after s.o.d. : 7.50 Tolerance : + 0.50

Check

tolerance \*NW : + 0.75

Barrel no. : 1

### BASIC SETTING

Rated speed rpm : 1100

Rack travel in mm: 12.55
Tolerance mm: + 0.05

Del. quantity

cm3/1000 strokes : 107.5

Tolerance cm3/1000 strokes : +- 1.0	+ Tolerance + cm3/1000 strokes : +- 1.0 + Check tolerance
Check tolerance cm3/1000s. : + 3.0	- cm3/1000s. : + 3.0 - Spreed - Tolerance
Spreed	cm3/1000 strokes : 3.5 Check tolerance
Tolerance : 3.5	cm3/1000s. : 6.0
Check tolerance cm3/1000s. : 6.0	CONTROL LEVER
Rated speed rpm : 500	control lever position degree : 101.0 tolerance degree : + 4.0
Rack travel in mm: 5.55 Tolerance mm: : + 0.10 Del. quantity cm3/1000 strokes: 20.5	RATED SPEED rack travel mm : 11.50 Rated speed rpm : 11.55 Tolerance 1/min : + 5
Tolerance cm3/1000 strokes : + 2.0 Check tolerance cm3/1000s. : + 4.5 Spreed	rack travel mm : 6.00 Rated speed rpm : 1230 Tolerance 1/min : + 5
Tolerance cm3/1000 strokes : 3.5 Check tolerance cm3/1000s. : 5.5	rack travel mm : 0.85 Tolerance mm : + 0.55 Rated speed rpm : 1375
(B) SETTING OF INJECTION PUMP WITH GOVERNOR	LOW IDLE
GUIDE SLEEVE POSITION	control lever position degree : 81.0 tolerance degree : +- 4.0
control lever position degree : - 3 Rated speed rpm : 800	Control lever difference Grad : 20.0 tolerance degree : + 4.0
Rack travel in mm : 0.50 Tolerance mm : + 0.20	Setting point w/out bumper spring
governor spring pre-tension	Rated speed rpm : 500 rack travel mm : 5.05 Tolerance mm : + 0.10
click setting x : 3.25	Rated speed rpm : 100
FULL LOAD DELIVERY AT FULL LOAD STOP	CRT mm min. :> 19.00
Rated speed rpm : 1100 Aneroid pressure	Testing:
hPa : 1000 Del. quantity cm3/1000 strokes : 107.5	Rated speed rpm : 500 rack travel mm : 5.55 Tolerance mm : +- 0.10

TORQUE CONTROL 1100 Rated speed rpm rack travel mm 12.55 Tolerance mm : +- 0.05

Rated speed rpm 750 13.50 rack travel mm : + 0.10Tolerance mm

ANEROID/ALTITUDE COMPENSATOR TEST

SETTING

750 Rated speed rpm 1000 Pressure hPa

Rated speed rpm 750 Pressure hPa 12.80 rack travel mm : + 0.10Tolerance mm

**MEASUREMENT** 

750 Rated speed rpm

650 Pressure hPa rack travel mm 13.60 : +- 0.20 Tolerance mm

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure

1000 hPa Rated speed rpm 750

Del. quantity

cm3/1000 strokes : 119.5

Tolerance

2.0 cm3/1000 strokes : +-

Check tolerance

cm3/1000s.

Aneroid pressure

hPa 750 Rated speed rpm

Del. quantity

cm3/1000 strokes : 109.0

Tolerance

1.0 cm3/1000 strokes : +-

Check tolerance

3.0 cm3/1000s.: +-

STARTING FUEL DELIVERY

100 Rated speed rpm : 20.50 rack travel mm : + 0.50 Tolerance mm

Del. quantity cm3/1000 strokes : 122.0

Tolerance

cm3/1000 strokes :  $\leftarrow$  10.0

Check tolerance

cm3/1000s. : +- 15.0

LOW IDLE

500 Rated speed rpm :

Rack travel in mm: 5.55 Tolerance mm : **←** 0.10 Del. quantity

20.5 cm3/1000 strokes :

Tolerance

cm3/1000 strokes : +-2.0 Check tolerance

cm3/1000s.

4.5 Spreed

Tolerance

cm3/1000 strokes : 3.5

Check tolerance

cm3/1000s. 5.5

#### Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 11.02.98 Test oil : ISO 4113

Combination No. : 0 401 446 150

Injection pump

Fump designation : PE6R130/720RS1506 EP type number : 0 411 436 002

6overnor

Governer design: : RQV250...1050R4K Governer no. : 0 421 415 903

Cust. part No. : 865 020 P02 v. 08/94

Customer-spec. information

Customer : PENTA : TAMD163

Motor : TAMD163 P-A Power KW : 553.0

#### TEST BENCH REQUIREMENTS

Inlet line : 3.2

Vibration damper

(RoBo diaphragm) : 3.1

Test oil inlet

temp. \*C : 40
Tolerance \*C : + 2.0

Overflow valve : 2 417 413 078

Inlet press. bar : 2.5 Tolerance bar : + 0.1

Overflow quantity

min. l/h : 120 Tolerance l/h : + 20.0

Test nozzle holde

assembly : 1 688 901 105

Opening pressure

bar : 208.5 Tolerance bar : +- 1.5

Test lines : 1 680 750 089

Outside diameter : 8.0

x inside diameter: 3.0 x length mm : 600

#### REMARKS

(A) INJECTION PUMP SETTING VALUES

Set equal delivery quant.

per values \_\_\_\_\_

### BEGINNING OF DELIVERY

Test pressure bar : 26.0 Tolerance bar : + 1.0

Prestroke mm : 4.45
Tolerance mm : + 0.05

Check

tolerance mm : +- 0.10

Rack travel in mm : 8.70 Tolerance mm : + 0.50

Firing order : 1-5-3-6-2-

: 4

Phasing : 0-60-120-180-240

: -300

Tolerance  $: \leftarrow 0.50$ 

Check

tolerance \*NW : +- 0.75

Start of delivery mark

Tolerance :  $\leftarrow$  0.50

Check

tolerance \*NW : +- 0.75

Barrel no. : 1

BASIC SETTING

Rack travel in mm : 14.40 Tolerance mm : + 0.05  bel. quantity cm3/1000 strokes : 450.0  Tolerance cm3/1000 strokes : + 2.0  Check tolerance cm3/1000s. : + 5.0  Spreed  Tolerance cm3/1000 strokes : 13.0  Check tolerance cm3/1000 strokes : 13.0  Check tolerance cm3/1000 strokes : 13.0  Check tolerance cm3/1000 strokes : 17.0  Tolerance cm3/1000 strokes : 13.0  Rated speed rpm : 360 guide sleeve travel mm : 2.41 Tolerance mm : + 0.25  Rated speed rpm : 3.54 Tolerance cm3/1000 strokes : 13.0  Rated speed rpm : 3.54 Tolerance cm3/1000 strokes : 13.0  Rated speed rpm : 1360 guide sleeve travel mm : 3.54 Tolerance cm3/1000 strokes : 17.0  GUIDE SLEEVE POSITION  Rated speed rpm : 1205  Rack travel in mm : 6.65 Tolerance mm : + 0.10 Del. quantity cm3/1000 strokes : 95.0  Tolerance cm3/1000 strokes : 4.0 Check tolerance cm3/1000 strokes : 4.0 Check tolerance cm3/1000 strokes : 11.0  Check tolerance cm3/1000 strokes : 11.0  Check tolerance cm3/1000 strokes : 11.0  Check tolerance cm3/1000 strokes : 11.0  Check tolerance cm3/1000 strokes : 11.0  Check tolerance cm3/1000 strokes : 11.0  Check tolerance cm3/1000 strokes : 15.0  GUIDE SLEEVE TRAVEL  Rated speed rpm : 1050 Aneroid pressure ha : 2200 Del. quantity cm3/1000s strokes : 450.0 Tolerance cm3/1000s : + 5.0 Spreed Tolerance cm3/1000s : + 5.0 Spreed Tolerance cm3/1000s : + 5.0 Spreed Tolerance cm3/1000s : + 5.0  Spreed Tolerance cm3/1000s : + 5.0  Spreed Tolerance cm3/1000s : + 5.0  Spreed Tolerance cm3/1000s : + 5.0  Check tolerance cm3/1000s : + 5.0  Spreed Tolerance cm3/1000s : + 5.0  Check tolerance cm3/1000s : + 5.0  Check tolerance cm3/1000s : + 5.0  Check tolerance cm3/1000s : + 5.0  Check tolerance cm3/1000s : + 5.0  Check tolerance cm3/1000s : + 5.0  Check tolerance cm3/1000s : + 5.0  Check tolerance cm3/1000s : + 5.0  Check tolerance cm3/1000s : + 5.0  Check tolerance cm3/1000s : + 5.0  Check tolerance cm3/1000s : + 5.0  Check tolerance cm3/1000s : + 5.0  Check tolerance cm3/1000s : + 5.0  Check tolerance cm3/1000s : + 5.0  Check tolerance cm3/1000s : + 5.0	Rated speed rpm : 1050	guide sleeve travel mm : 6.42 Tolerance mm : + 0.25
beL. quantity         Tolerance mm         : ← 0.25           cm3/1000 strokes         : ← 2.0         Rated speed rpm         : 360           Tolerance         guide sleeve         travel mm         : − 2.41           Tolerance         : ← 5.0         Rated speed rpm         : 570           Spreed         travel mm         : − 3.54           Tolerance         travel mm         : − 3.54           Tolerance         travel mm         : − 3.54           Tolerance mm         : + − 0.25           Rated speed rpm         : 3.54           Tolerance mm         : + − 0.25           Check tolerance         travel mm         : + 0.25           Check tolerance mm         : + − 0.10         postion degree         : − 1           Del quantity         Rated speed rpm         : 12.05           Cm3/1000 strokes         : + 0.10         postion degree         : − 1           Del quantity         Rated speed rpm         : 12.05           Raked speed rpm         : 12.05         Raked speed rpm         : 12.05           Tolerance mm         : + 0.10         postion degree         : − 1           Rated speed rpm         : 12.05         Raked speed rpm         : 12.05           Tolerance m		guide sleeve
Tolerance cm3/1000 strokes : + 2.0	Del. quantity cm3/1000 strokes : 450.0	Tolerance mm : +- 0.25
Rated speed rpm : 570   guide sleeve   travel mm : 3.54   Tolerance   cm3/1000 strokes : 13.0   Rated speed rpm : 570   guide sleeve   travel mm : 3.54   Tolerance   cm3/1000 strokes : 13.0   Rated speed rpm : 1360   guide sleeve   travel mm : 13.50   Tolerance   cm3/1000s. : 17.0   Tolerance   cm3/1000s. : 17.0   GUIDE SLEEVE POSITION      Rated speed rpm : 250   GUIDE SLEEVE POSITION		guide sleeve travel mm : 2.41
Travel mm		Rated speed rpm : 570
cm3/1000 strokes : 13.0       Rated speed rpm : 1360 guide sleeve travel mm : 13.50         cm3/1000S.       : 17.0       Tolerance mm : ± 0.50         Rated speed rpm : 250         Rack travel in mm : 6.65       control lever position degree : − 1 Rated speed rpm : 1205         cm3/1000 strokes : 95.0       Rack travel in mm : 11.00 Tolerance cm3/1000 strokes : ± 4.0       Rack travel in mm : 11.00 Tolerance mm : ± 2.50         cm3/1000 strokes : 11.0       Rated speed rpm : 1050 Aneroid pressure hPa : 2200 Del. quantity cm3/1000 strokes : 450.0 Tolerance cm3/1000 strokes : ± 2.0 Check tolerance cm3/1000 strokes : ± 2.0 Check tolerance cm3/1000s. : ± 5.0         GUIDE SLEEVE TRAVEL       Spreed Tolerance cm3/1000 strokes : ± 2.0 Check tolerance cm3/1000s. : ± 5.0         GUIDE SLEEVE TRAVEL       Spreed Tolerance cm3/1000 strokes : 13.0 Check tolerance cm3/1000s. : ± 5.0         Rated speed rpm : 1106 guide sleeve travel mm : 9.18 Tolerance mm : ± 0.25       CONTROL LEVER CONTROL LEVER control lever	+	travel mm : 3.54
Tolerance mm : + 0.50	cm3/1000 strokes : 13.0	guide sleeve
Rated speed rpm : 250  Rack travel in mm : 6.65 Tolerance mm : + 0.10 Del. quantity cm3/1000 strokes : 95.0 Tolerance cm3/1000 strokes : + 4.0 Check tolerance cm3/1000s. : + 7.0 Spreed Tolerance cm3/1000s. : 11.0 Check tolerance cm3/1000s. : 15.0  Rated speed rpm : 1050 Rated speed rpm : 1050 Rated speed rpm : 1050 Rated speed rpm : 1050 Rated speed rpm : 1050 Rated speed rpm : 1050 Rated speed rpm : 1050 Rated speed rpm : 1050 Rated speed rpm : 1050 Check tolerance cm3/1000s. : 15.0  GUIDE SLEEVE TRAVEL  Rated speed rpm : 1106 Guide sleeve travel mm : 9.18 Tolerance mm : + 0.25  Rated speed rpm : 250 Guide sleeve travel mm : 250 Guide sleeve travel mm : 1.26 Tolerance mm : + 0.25  Rated speed rpm : 250 Guide sleeve travel mm : 1.26 Tolerance mm : + 0.25  Rated speed rpm : 1.26 Tolerance mm : + 0.25  CONTROL LEVER Tontrol lever		
Tolerance mm : + 0.10 Del. quantity cm3/1000 strokes : 95.0 Tolerance cm3/1000 strokes : + 4.0 Check tolerance cm3/1000 strokes : + 7.0 Spreed Tolerance cm3/1000 strokes : 11.0 Check tolerance cm3/1000 strokes : 11.0 Check tolerance cm3/1000 strokes : 11.0 Check tolerance cm3/1000 strokes : 15.0  (B) SETTING OF INJECTION PUMP WITH GOVERNOR  Rated speed rpm : 1050 Aneroid pressure hPa : 2200 Del. quantity cm3/1000 strokes : 450.0 Tolerance cm3/1000 strokes : 450.0 Tolerance cm3/1000 strokes : + 2.0 Check tolerance cm3/1000 strokes : + 5.0 Spreed Tolerance cm3/1000 strokes : 13.0 Check tolerance cm3/1000 strokes : 13.0 Check tolerance cm3/1000 strokes : 13.0 Check tolerance cm3/1000 strokes : 13.0 Check tolerance cm3/1000 strokes : 13.0 Check tolerance cm3/1000s. : + 5.0 Spreed Tolerance cm3/1000s. : + 5.0 Spreed Tolerance cm3/1000s. : 17.0  Check tolerance cm3/1000s. : 17.0  Check tolerance cm3/1000s. : 17.0	Rated speed rpm : 250	GUIDE SLEEVE POSITION
Check tolerance cm3/1000s. : + 7.0  Spreed  Tolerance cm3/1000 strokes : 11.0 Check tolerance cm3/1000s. : 15.0  (B) SETTING OF INJECTION PUMP WITH GOVERNOR  (B) SEEVE TRAVEL  Rated speed rpm : 106 GUIDE SLEEVE TRAVEL  Rated speed rpm : 1106 guide sleeve travel mm : 9.18 Tolerance mm : + 0.25  Rated speed rpm : 250 guide sleeve travel mm : 250 guide sleeve travel mm : 1.26 Tolerance mm : + 0.25  CONTROL LEVER  FULL LOAD DELIVERY AT FULL LOAD STOP  FULL LOAD DELIVERY AT FULL LOAD STOP  FULL LOAD DELIVERY AT FULL LOAD STOP  FULL LOAD DELIVERY AT FULL LOAD STOP  FULL LOAD DELIVERY AT FULL LOAD STOP  FULL LOAD DELIVERY AT FULL LOAD STOP  FULL LOAD DELIVERY AT FULL LOAD STOP  Aneroid pressure  Aneroid pressure  Aneroid pressure  Cm3/1000 strokes : 450.0  Tolerance cm3/1000 strokes : + 2.0  Check tolerance cm3/1000s. : + 5.0  Spreed  Tolerance cm3/1000s. : 13.0  Check tolerance cm3/1000s. : 17.0  CONTROL LEVER  TOLERANCE  CONTROL LEVER  TOLERANCE  CONTROL LEVER  CONTROL LEVER  CONTROL LEVER  CONTROL LEVER	Tolerance mm : + 0.10 + Del. quantity cm3/1000 strokes : 95.0 + Tolerance +	position degree : - 1 Rated speed rpm : 1205 Rack travel in mm : 11.00
Tolerance cm3/1000 strokes : 11.0 Check tolerance cm3/1000s. : 15.0  (B) SETTING OF INJECTION PUMP WITH GOVERNOR  GUIDE SLEEVE TRAVEL  Rated speed rpm : 1050  Rated speed rpm : 2.00  Check tolerance cm3/1000 strokes : 450.0  Check tolerance cm3/1000s. : + 5.0  Spreed  Tolerance cm3/1000 strokes : 13.0  Check tolerance cm3/1000 strokes : 13.0  Check tolerance cm3/1000 strokes : 13.0  Check tolerance cm3/1000 strokes : 13.0  Check tolerance cm3/1000 strokes : 13.0  Check tolerance cm3/1000s. : 17.0  Check tolerance cm3/1000s. : 17.0  Check tolerance cm3/1000s. : 17.0  Check tolerance cm3/1000s. : 17.0  Check tolerance cm3/1000s. : 17.0  Check tolerance cm3/1000s. : 17.0  Check tolerance cm3/1000s. : 17.0  Control Lever	Check tolerance cm3/1000s. : + 7.0	
(B) SETTING OF INJECTION PUMP  WITH GOVERNOR  GUIDE SLEEVE TRAVEL  Rated speed rpm : 1106 guide sleeve travel mm : 9.18 Tolerance mm : 40.25  Rated speed rpm : 250 guide sleeve travel mm : 1.26 Tolerance mm : 4.25  Control LEVER  cm3/1000 strokes : 450.0  Tolerance cm3/1000 strokes : + 5.0  Spreed Tolerance cm3/1000 strokes : 13.0  Check tolerance cm3/1000 strokes : 13.0  Check tolerance cm3/1000 strokes : 13.0  Control LEVER  control Lever	Tolerance + cm3/1000 strokes : 11.0 + Check tolerance +	Aneroid pressure hPa : 2200
GUIDE SLEEVE TRAVEL  Rated speed rpm : 1106 guide sleeve travel mm : 9.18 Tolerance mm : 40.25  Rated speed rpm : 250 guide sleeve travel mm : 1.26 Tolerance mm : 40.25  Control lever		cm3/1000 strokes : 450.0 Tolerance cm3/1000 strokes : +- 2.0 Check tolerance
Rated speed rpm : 1106 guide sleeve travel mm : 9.18 Tolerance mm : 250 guide sleeve travel mm : 1.26 Tolerance mm : + 0.25  Rated speed rpm : 250 guide sleeve travel mm : 1.26 Tolerance mm : + 0.25	GUIDE SLEEVE TRAVEL	Spreed
guide sleeve + CONTROL LEVER travel mm : 1.26 Tolerance mm : + 0.25 + control lever	guide sleeve travel mm : 9.18	cm3/1000 strokes : 13.0 Check tolerance
Tolerance mm : + 0.25 + control lever	guide steeve	CONTROL LEVER
rated speed rpm : 895 + tolerance degree : + 4.0	+	position degree : 65.0

control lever position degree tolerance degree RATED SPEED rack travel mm Rated speed rpm Tolerance 1/min rack travel mm Rated speed rpm Tolerance 1/min rack travel mm Tolerance mm Rated speed rpm Rated speed rpm Rated speed rpm	: 119.0 : ← 4.0 : 13.40 : 1105 : ← 5 : 4.00 : 1200 : ← 15 : 0.50 : ← 6.50 : 1300
LOW IDLE	
COM IDEE	
control lever position degree tolerance degree	: 74.0 : + 4.0
control lever position degree tolerance degree	: 20.0 : + 4.0
Setting point w/o	ut bumper spring
Rated speed rpm	: 150
CRT mm min.	: > 7.70
Testing:	
Rated speed rpm rack travel mm Tolerance mm	: 250 : 6.65 : + 0.10
Rated speed rpm	: 380
TORQUE CONTROL Rated speed rpm rack travel mm Tolerance mm	: 1050 : 14.40 : ← 0.05
Rated speed rpm rack travel mma Tolerance mma	: 850 : 13.20 : ← 0.15
Rated speed rpm rack travel mm Tolerance mm	: 975 : 14.30 : + 0.20

ANEROID/ALTITUDE COMPENSATOR TEST	
SETTING	
Rated speed rpm Pressure hPa rack travel mm Tolerance mm	: 1050 : 2200 : 14.40 : ← 0.05
Rated speed rpm Pressure hPa rack travel mm Tolerance mm	: 500 : - : 8.70 : +- 0.15
MEASUREMENT	
Rated speed rpm	: 1050
Pressure hPa rack travel mm Tolerance mm	: 1580 : 5.10 : ← 0.10

: 400

: 0.25 : + 0.05

# FUEL DELIVERY CHARACTERISTICS

Pressure hPa

rack travel mm Tolerance mm

<del></del>	
Aneroid pressure	
hPa	: 2200
Rated speed rpm	: 850
Del. quantity	440.0
cm3/1000 strokes	: 412.0
Tolerance cm3/1000 strokes	: + 4.0
Check tolerance	• • •••
cm3/1000S.	: <del>+-</del> 7.0
Spreed	
Tolerance	45.0
cm3/1000 strokes Check tolerance	: 15.0
cm3/1000S.	: 19.0
(1107 100001	
Aneroid pressure	
hPa	500
Rated speed rpm Del. quantity	. 500
cm3/1000 strokes	: 238.0
Tolerance	
cm3/1000 strokes	: <del>+</del> 2.0
Check tolerance	
cm3/1000s.	: <del>+-</del> 5.0

### STARTING FUEL DELIVERY

Rated speed rpm 100 rack travel mm 11.70 Tolerance mm : + 0.30

Del. quantity

cm3/1000 strokes : 385.0

Tolerance

cm3/1000 strokes : + 20.0

Check tolerance

: + 25.0 cm3/1000s.

### LOW IDLE

Rated speed rpm : 250

6.65 Rack travel in mm: Tolerance mm 0.10

Del. quantity

cm3/1000 strokes : 95.0

Tolerance

cm3/1000 strokes : +-

Check tolerance

cm3/1000s. 7.0

Spreed

Tolerance

cm3/1000 strokes : 11.0

Check tolerance

cm3/1000s. 15.0

#### Note remarks

Refer to Service Info for test and adjustment instructions. See microcard(s) W400/...

Edition : 09.02.98 Test oil : ISO 4113

Combination No. : 0 401 846 994

Injection pump

Pump designation : PE6P110A320RS3374 EP type number : 0 411 816 800

Governor

Governer design. : RQV300...1100PA1182

Governer no. : 0 421 814 110

Cust. part No. : 11032709 PO2 v.03.97

Customer-spec. information Customer : VCE

Motor : TD63KBE Power KW : 118.0

### TEST BENCH REQUIREMENTS

Inlet line : 3.1

Vibration damper

(RoBo diaphragm): 4.2

Test oil inlet

temp. °C Tolerance \*C

Overflow valve : 2 417 413 046

Inlet press. bar : 2.5 Tolerance bar : + 0.1

Overflow quantity

min. L/h : 100 Tolerance L/h : + 20.0

Test nozzle holde

: 1 688 901 101 assembly

Opening pressure

: 208.5 bar Tolerance bar : + 1.5

Test Lines : 1 680 750 008

Outside diameter : 6.0

x inside diameter: 2.0 x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES

Set equal delivery quant.

per values \_\_\_\_

# BEGINNING OF DELIVERY

Test pressure bar : 26.0 Tolerance bar  $: \leftarrow 1.0$ 

Prestroke mm : 2.45
Tolerance mm : + 0.05 Check

tolerance mm : +- 0.10

Rack travel in mm: 11.15 Tolerance mm : +- 0.50

: 1-5-3-6-2-Firing order

: 4

Phasing : 0-60-120-180-240

: -300

: +- 0.50 Tolerance

Check

tolerance  $^{\circ}NW$  :  $\leftarrow$  0.75

Start of delivery mark

: +- 0.50 Tolerance

Check

tolerance \*NW : +- 0.75

Barrel no. : 1

†	Tolerance mm : + 0.20
BASIC SETTING	Rated speed rpm : 822 guide sleeve
Rated speed rpm : 625	travel mm : 5.40 Tolerance mm : + 0.25
Rack travel in mm: 14.35 Tolerance mm: + 0.05	Rated speed rpm : 510 guide sleeve
Del. quantity cm3/1000 strokes : 153.0	travel mm : 3.11 Tolerance mm : + 0.25
Tolerance cm3/1000 strokes : + 1.0	Rated speed rpm : 1390 guide sleeve travel mm : 11.50
Check tolerance cm3/1000s. : + 3.0	Tolerance mm : + 0.50
Spreed	GUIDE SLEEVE POSITION
Tolerance cm3/1000 strokes : 4.0	control lever position degree : - 1 Rated speed rpm : 1240
Check tolerance cm3/1000s. : 6.0	Rack travel in mm : 11.30 Tolerance mm : + 1.30
Rated speed rpm : 300	FULL LOAD DELIVERY AT FULL LOAD STOP
Rack travel in mm: 5.90 Tolerance mm: + 0.10 Del. quantity	Rated speed rpm : 625 Aneroid pressure hPa : 1500
cm3/1000 strokes : 26.0 + Tolerance cm3/1000 strokes : + 2.0 + -	Del. quantity cm3/1000 strokes : 153.0 Tolerance
Check tolerance cm3/1000s. : + 5.0	cm3/1000 strokes : +- 1.0 Check tolerance
Spreed Tolerance cm3/1000 strokes: 4.0	cm3/1000s. : +- 3.0 Spreed Tolerance
Check tolerance cm3/1000s. : 6.0	cm3/1000 strokes : 4.0 Check tolerance cm3/1000S. : 6.0
(B) SETTING OF INJECTION PUMP	
WITH GOVERNOR	CONTROL LEVER
GUIDE SLEEVE TRAVEL	control lever position degree : 49.0
Rated speed rpm : 1172 + guide sleeve + travel mm : 8.69 +	tolerance degree : + 4.0 control lever
Tolerance mm : + 0.15	position degree : 117.0 tolerance degree : +- 4.0
Rated speed rpm : 300 + guide sleeve + travel mm : 1.48 +	RATED SPEED rack travel mm : 13.00

Rated speed rpm Tolerance 1/min	: 1160 : ← 5
rack travel mm Rated speed rpm Tolerance 1/min	: 4.00 : 1275 : + 15
rack travel mm Tolerance mm Rated speed rpm	: 0.50 : ← 0.50 : 1330
TOM IDLE	
control lever position degree tolerance degree	: 85.0 : + 4.0
control lever position degree tolerance degree	: 18.0 : + 4.0
Setting point w/o	ut bumper spring
Rated speed rpm	: 200
CRT mm min.	: > 8.60
Testing:	
Rated speed rpm rack travel mm Tolerance mm	: 300 : 5.90 : +- 0.10
Rated speed rpm	: 370
TORQUE CONTROL Rated speed rpm rack travel mm Tolerance mm	: 625 : 14.35 : ← 0.05
Rated speed rpm rack travel mm Tolerance mm	: 1025 : 14.00 : + 0.10
Rated speed rpm rack travel mm Tolerance mm	: 820 : 14.30 : + 0.10
Rated speed rpm rack travel mm Tolerance mm	: 625 : 14.60 : + 0.10

WEROID/ALTITUDE	
COMPENSATOR TEST	

### SETTING

Rated speed rpm	:	625
Pressure hPa	:	1500
rack travel mm	:	14.35
Tolerance mm	:	<b>+-</b> 0.05

Rated speed rpm	:	625
Pressure hPa	:	-
rack travel mm	:	11.15
Tolerance mm	: +	-0.10

### **MEASUREMENT**

Rated speed rpm	:	625
Pressure hPa rack travel mma Tolerance mm	: : +-	610 2.50 0.20
Pressure hPa rack travel mm Tolerance mm	: +-	90 0.25 0.05

# FUEL DELIVERY CHARACTERISTICS

	<del></del>	
Aneroid pressure hPa	: 1500	
Rated speed rpm	: 1025	
Del. quantity	, , ,	
cm3/1000 strokes	: 140.0	
Tolerance cm3/1000 strokes	: + 2.0	
Check tolerance cm3/1000S. Spreed	: + 5.0	
Tolerance cm3/1000 strokes	: 6.0	
Check tolerance cm3/1000s.	: 10.0	
rack travel mm	: 14.30	
Tolerance mm	: +- 0.10	
Aneroid pressure		

Aneroid pressure hPa Rated speed rpm : 625
Del. quantity
cm3/1000 strokes : 89.0 Tolerance cm3/1000 strokes : +- 1.0 Check tolerance cm3/1000s. : +- 4.0

### STARTING FUEL DELIVERY

Rated speed rpm : 100
rack travel mm : 11.20
Tolerance mm : + 0.20
Del. quantity
cm3/1000 strokes : 103.0
Tolerance
cm3/1000 strokes : + 10.0
Check tolerance

### LOW IDLE

cm3/1000s.

Rated speed rpm : 300 5.90 Rack travel in mm: : + 0.10 Tolerance mm Del. quantity cm3/1000 strokes : 26.0 Tolerance cm3/1000 strokes :  $\leftarrow$  2.0 Check tolerance cm3/1000s. : +- 5.0 Spreed Tolerance cm3/1000 strokes : 4.0 Check tolerance 6.0 cm3/1000s. :

: +- 14.0

#### Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 06.02.98 Test oil : ISO 4113

Combination No. : 0 401 876 345

Injection pump

Pump designation: PE6P120B320RS3301 EP type number: 0 411 826 819

Governor

Governer design. : RSV250...1100P0A656

Governer no. : 0 421 833 574

Cust. part No. : 3826519 PO2 v. 12/96

Customer—spec. information
Customer : PENTA
Motor : TAMD 102 D
Power KW : 315.0

### TEST BENCH REQUIREMENTS

Inlet line : 3.2

Vibration damper

(RoBo diaphragm) : 4.1

Test oil inlet

temp. °C : 40
Tolerance °C : + 2.0

Overflow valve : 2 417 413 077

Inlet press. bar : 1.5 Tolerance bar : + 0.1

Overflow quantity

min. L/h : 110 Tolerance L/h : + 20.0

Test nozzle holde

assembly : 1 688 901 019

Opening pressure

bar : 208.5
Tolerance bar : + 1.5

Test lines : 1 680 750 075

Outside diameter : 8.0

x inside diameter : 3.0 x length mm : 1000

### REMARKS

# (A) INJECTION PUMP SETTENG VALUES

Set equal delivery quant.

per values \_\_\_\_

# BEGINNING OF DELIVERY

Test pressure bar : 26.0 Tolerance bar : + 1.0

Prestroke mm : 3.45
Tolerance mm : + 0.05

Check

tolerance mm : + 0.10

Rack travel in mm : 8.30 Tolerance mm : + 0.50

Firing order : 1-5-3-6-2-

: 4

Phasing : 0-60-120-180-240

: -300

Tolerance : +- 0.50

Check

tolerance \*NW : + 0.75

Start of delivery mark

Tolerance : + 0.50

Check

tolerance °NW : + 0.75

Barrel no. : 1	Rack travel in mm: 0.50 Tolerance mm: + 0.20
BASIC SETTING	governor spring
Rated speed rpm : 1100	pre-tension click setting x : 2.25
Rack travel in mm : 13.20 Tolerance mm : + 0.05	FULL LOAD DELIVERY AT FULL LOAD STOP
Del. quantity cm3/1000 strokes : 280.0	Rated speed rpm : 1100 Aneroid pressure hPa : 1500
Tolerance cm3/1000 strokes : +- 1.0	Del. quantity cm3/1000 strokes : 280.0 Tolerance
Check tolerance : +- 4.0	cm3/1000 strokes : + 1.0 Check tolerance cm3/1000s. : + 4.0
Spreed	Spreed Tolerance cm3/1000 strokes : 7.0
Tolerance cm3/1000 strokes : 7.0	Check tolerance cm3/1000s. : 11.0
Check tolerance : 11.0	CONTROL LEVER
Rated speed rpm : 250	control lever position degree : 48.0 tolerance degree : +- 4.0
Rack travel in mm: 6.20 Tolerance mm: + 0.10 Del. quantity cm3/1000 strokes: 24.0	control lever position degree : 98.0 tolerance degree : + 4.0
Tolerance cm3/1000 strokes : +- 2.5 Check tolerance cm3/1000S. : +- 5.0 Spreed	RATED SPEED rack travel mm : 12.20 Rated speed rpm : 1145 Tolerance 1/min : +- 5
Tolerance cm3/1000 strokes : 3.0 Check tolerance cm3/1000s. : 6.0	rack travel mm : 4.00 Rated speed rpm : 1230 Tolerance 1/min : +- 15
(B) SETTING OF INJECTION PUMP WITH GOVERNOR	rack travel mm : 0.85 Tolerance mm : +- 0.55 Rated speed rpm : 1350
GUIDE SLEEVE POSITION	rack travel mm : 4.00 Rated speed rpm : 1240 Tolerance 1/min : +- 15
control lever position degree : - 3 Rated speed rpm : 800	LOW IDLE

control lever		‡
position degree tolerance degree	: 75.0 : +- 4.0	†
control lever position degree tolerance degree	: 25.0 : ← 4.0	+++++++++++++++++++++++++++++++++++++++
Setting point w/o	out bumper spring	Ŧ
Rated speed rpm rack travel mm Tolerance mm	: 250 : 5.70 : ← 0.10	†
Testing:	•	Ī
Rated speed rpm rack travel mma Tolerance mma	: 250 : 6.20 : + 0.10	++++
rack travel mma Rated speed rpm Tolerance 1/min	: 2.00 : 395 : +- 30	+++++++++++++++++++++++++++++++++++++++
TURQUE CONTROL Rated speed rpm rack travel mm Tolerance mm	: 1100 : 13.20 : ← 0.05	† † † †
Rated speed rpm rack travel mma Tolerance mm	: 700 : 13.20 : ← 0.10	+++++++++++++++++++++++++++++++++++++++
ANEROID/ALTITUDE COMPENSATOR TEST		\frac{1}{+}
SETTING		+
Rated speed rpm Pressure hPa rack travel mm Tolerance mm	: 500 : 1500 : 13.20 : ← 0.10	Ī
Rated speed rpm Pressure hPa rack travel mem Tolerance mem	: 500 : - : 8.30 : ← 0.20	+ + + + + + + + + + + + + + + + + + + +
MEASUREMENT		‡
Rated speed rpm	: 500	‡
Pressure hPa rack travel mm Tolerance mm	: 1120 : 4.20 : + 0.15	+

Pressure hPa	: 160
rack travel mm	: 0.25
Tolerance mm	: +- 0.05
	<del></del>
FUEL DELIVERY CHA	RACTERISTICS
Aneroid pressure	. 4500
hPa	: 1500 : 700
Rated speed rpm Del. quantity	: 700
cm3/1000 strokes	: 303.0
Tolerance	. 505.0
cm3/1000 strokes	: + 3.0
Check tolerance	
cm3/1000s.	: <b>←</b> 6.0
Spreed	
Tolerance	
cm3/1000 strokes	: 8.0
Check tolerance	. 40.0
cm3/1000s.	: 12.0
Aneroid pressure	
hPa	• _
Rated speed rpm	: 700
Del. quantity	
cm3/1000 strokes	: 148.0
Tolerance	
cm3/1000 strokes	: <del>+</del> 1.0
Check tolerance	
cm3/1000s.	: +- 4.0
STARTING FUEL DEL	IVERY
	. 3
Rated speed rpm	: 100
rack travel mm	: 15.00
Tolerance mm	: <del>+-</del> 0.50
LOW IDLE	
COM INCE	
Rated speed rpm	: 250
TOWN OPPOUND COMM	
Rack travel in mm	: 6.20
Tolerance mm	: +- 0.10
Del. quantity	
cm3/1000 strokes	: 24.0
Tolerance	
cm3/1000 strokes	: +- 2.5
Check tolerance	50
cm3/1000s.	: +- 5.0
Spreed	

Tolerance cm3/1000 strokes : Check tolerance cm3/1000s. : 3.0

: 6.0

#### Note remarks

Refer to Service Info for test and adjustment instructions. See microcard(s) W400/...

Edition Test oil

: 11.02.98 : ISO 4113

Combination No. : 0 401 876 761

Injection pump

Pump designation : PE6P120B320RS3206 . EP type number : 0 411 826 820

6overnor

Governer design. : RSV250...900P4A657

Governer no. : 0 421 833 575

Cust. part No. : 3826529 PO1 v. 10/96

Customer-spec. information

Customer : VOLVO-PENTA

Motor

: TAMD122 A

Power KW

: 280.0

#### TEST BENCH REQUIREMENTS

Inlet line : 3.2

Vibration |

damper

(RoBo diaphragm) : 4.1

Test oil inlet

temp. °C

40

Tolerance \*C

2.0

Overflow valve : 2 417 413 977

Inlet press. bar :

Tolerance bar : + 0.1

Overflow quantity

min. l/h : 80 Tolerance l/h : + 20.0

Test nozzle holde

assembly

: 1 688 901 019

Opening pressure

bar

: 208.5 Tolerance bar : + 1.5

Test lines : 1 680 750 075

Outside diameter: 8.0

x inside diameter:

x length mm : 1000

REMARKS

(A) INJECTION PUMP SETTING VALUES

Set equal delivery quant.

per values \_\_\_\_\_

BEGINNING OF DELIVERY

Test pressure bar : 26.0

Tolerance bar : + 1.0

Prestroke mm : 3.55

: + 0.05 Tolerance mm

Check

tolerance mm : +- 0.10

Rack travel in mm : 8.70

Tolerance mm : + 0.50

Firing order : 1-5-3-6-2-

Phasing : 0-60-120-180-240

: -300

Tolerance : **←** 0.50

Check

tolerance \*NW : +- 0.75

Start of delivery mark

Tolerance : +- 0.50

Check

tolerance \*NW : + 0.75

Barrel no. : 1

1	
	governor spring
BASIC SETTING	pre-tension click setting x : 4.00
Rated speed rpm : 700	
	FULL LOAD DELIVERY AT FULL LOAD STOP
Rack travel in mm: 11.40 + Tolerance mm: + 0.05 +	Rated speed rpm : 700
Del. quantity cm3/1000 strokes : 264.0	Aneroid pressure hPa : 1500
	Del. quantity cm3/1000 strokes : 264.0 Tolerance
Tolerance cm3/1000 strokes : + 1.0	cm3/1000 strokes : +- 1.0 Check tolerance
Check tolerance cm3/1000s. : + 4.0	cm3/1000s. : +- 4.0
Spreed	Tolerance : 5.0
•	Check tolerance
Tolerance cm3/1000 strokes : 5.0	cm3/1000s. : 9.0
Check tolerance cm3/1000s. 9.0	CONTROL LEVER
	COMMUNIC TONEY
+	control lever
Rated speed rpm : 250	position degree : 55.0 tolerance degree : +- 4.0
Rack travel in mm: 5.10	- control lever
Tolerance mm : + 0.10	position degree : 105.0
Del. quantity + cm3/1000 strokes : 20.0 +	tolerance degree : +- 4.0
Tolerance	RATED SPEED
cm3/1000 strokes : +- 3.0 +- Check tolerance +-	rack travel mm : 10.40 Rated speed rpm : 960
cm3/1000s. : + 6.0	Tolerance 1/min : + 5
Tolerance	rack travel mm : 4.00
cm3/1000 strokes : 5.0	- Rated speed rpm : 1000 - Tolerance 1/min : +- 15
Check tolerance + cm3/1000s. : 7.0	· Toterance Trimin : +- 15
	rack travel mm : 0.85
(B) SETTING OF INJECTION PUMP	Tolerance mm : +- 0.55 Rated speed rpm : 1130
WITH GOVERNOR	rack travel mm : 4.00
+	Rated speed rpm : 1010
GUIDE SLEEVE POSITION	Tolerance 1/min : + 15
control lever	
position degree : -3 Rated speed rpm : 800	- LOW IDLE
Rack travel in mm: 0.50	- - control lever
Tolerance mm : + 0.20	position degree : 73.0

L09

tolerance degree : +- 4.0 control lever position degree : tolerance degree : +-4.0 Setting point w/out bumper spring 250 Rated speed rpm rack travel mm 4.60 Tolerance ma : + - 0.10Testing: 250 Rated speed rpm 5.10 rack travel mm Toterance mm : + 0.102.00 rack travel mm Rated speed rpm 410 Tolerance 1/min **30** TORQUE CONTROL 700 Rated speed rpm 11,40 rack travel mm : +- 0.05 Tolerance mm ANEROID/ALTITUDE COMPENSATOR TEST SETTING 700 Rated speed rpm Pressure hPa 1500 rack travel mm 11.40 Tolerance mm : ← 0.05 700 Rated speed rpm Pressure hPa 8.70 rack travel mm Tolerance ma : +~ 0.20 **MEASUREMENT** 700 Rated speed rpm Pressure hPa 725 2.30 rack travel mm : + 0.20Tolerance mm Pressure hPa 240 0.25 rack travel mm : + 0.05Tolerance mm

Aneroid pressure
hPa : Rated speed rpm : 700
Del. quantity
cm3/1000 strokes : 178.0
Tolerance
cm3/1000 strokes : + 1.0
Check tolerance
cm3/1000s. : + 4.0

Rated speed rpm : 100 rack travel mm : 8.70 Tolerance mm : + 0.20

LOW IDLE Rated speed rpm : 250 Rack travel in mm : 5.10 : + 0.10Tolerance mm Del. quantity cm3/1000 strokes : 20.0 Tolerance cm3/1000 strokes : + 3.0 Check tolerance cm3/1000s. 6.0 : +-Spreed Tolerance cm3/1000 strokes : 5.0 Check tolerance

End of test specification sheet

7.0

cm3/1000s.

Note remarks

Refer to Service Info for test and adjustment instructions.

See microcard(s) W400/...

Edition : 06.02.98 Test oil : ISO 4113

Combination No. : 0 401 876 777

Injection pump

Pump designation : PE6P12OB32ORS3261 EP type number : 0 411 826 821

**Governor** 

Governer design. : RSV250...1100P0A655

Governer no. : 0 421 833 573

Cust. part No. : 3826513 P01 v.10.96

Customer-spec. information

Customer : PENTA Motor : TAMD 102 A

Power KW : 294.0

TEST BENCH REQUIREMENTS

Inlet line : 3.2

Vibration damper

(RoBo diaphragm): 4.1

Test oil inlet

temp.  $^{\circ}$ C :  $^{\circ}$ C Tolerance  $^{\circ}$ C :  $\leftarrow$  2.0

Overflow valve : 2 417 413 077

Inlet press. bar : 1.5

Overflow quantity

min. L/h : 100 Tolerance L/h : + 20.0

Test nozzle holde

assembly : 1 688 901 019

Opening pressure

bar : 208.5 Tolerance bar : + 1.5

Test lines : 1 680 750 067

Outside diameter : 6.0

x inside diameter: 3.0 x length mm : 1000

REMARKS

(A) INJECTION PUMP SETTING VALUES

Set equal delivery quant.

per values \_\_\_\_\_

BEGINNING OF DELIVERY

Test pressure bar : 26.0 Tolerance bar : + 1.0

Prestroke mm : 3.45
Tolerance mm : + 0.05

Check

tolerance mm : + 0.10

Rack travel in mm : 8.50

Tolerance mm : + 0.50

Firing order : 1-5-3-6-2-

: 4

Phasing : 0-60-120-180-240

: -300

Tolerance :  $\leftarrow$  0.50

Check

tolerance \*NW : + 0.75

Start of delivery mark

Tolerance :  $\leftarrow$  0.50

Check

tolerance \*NW : + 0.75

Barrel no. : 1

	Toward and
BASIC SETTING	<pre>+ governor spring + pre-tension</pre>
	click setting x : 2.25
Rarted speed rpm : 700	+
**************************************	+ FULL LOAD DELIVERY AT FULL LOAD STOP
Rack travel in mm: 12.15	T TOLL LOAD DELIVERY AT TOLL LOAD STOP
Tolerance nm : +- 0.05	Rated speed rpm : 700
	+ Aneroid pressure
Del. quantity cm3/1000 strokes : 260.0	+ hPa : 1500 + Del. quantity
that room strokes . Zou.u	cm3/1000 strokes : 260.0
Tolerance	† Tolerance
cm3/1000 strokes : + 1.0	+ cm3/1000 strokes : + 1.0
Check tolerance	+ Check tolerance + cm3/1000s. : + 4.0
cm3/1000s. : +- 4.0	F Spreed
	+ Tolerance
Spreed	cm3/1000 strokes : 5.0
Talanaura	Check tolerance
Tolerance cm3/1000 strokes : 5.0	+ cm3/1000s. : 9.0
CHU/ 1000 SCI ORES . J.U	Ţ
Check tolerance	
cm3/1000s. : 9.0	CONTROL LEVER
	t control lever
	position degree : 47.0
Rated speed rpm : 250	tolerance degree : +- 4.0
·	+
Rack travel in mm: 6.50	+ control lever
Tolerance mm : + 0.10 Del. quantity	<pre>position degree : 97.0 tolerance degree : +- 4.0</pre>
cm3/1000 strokes : 23.0	+ Cotor arioe acgree 4.0
Tolerance	RATED SPEED
cm3/1000 strokes : + 3.0	rack travel mm : 11.10
Check tolerance cm3/1000s. : +- 6.0	+ Rated speed rpm : 1145 + Tolerance 1/min : +- 5
cm3/1000S. : +- 6.0 Spreed	T TOTEL ALIEN : 1 2
Tolerance	rack travel mm : 4.00
cm3/1000 strokes : 5.0	Rated speed rpm : 1210
Check tolerance	Tolerance 1/min : + 15
cm3/1000s. : 7.0	+ rack travel mm : 0.85
	+ Tolerance mm : + 0.55
(B) SETTING OF INJECTION PUMP	Rated speed rpm : 1350
WITH GOVERNOR	+
	rack travel mm : 4.00
	+ Rated speed rpm : 1220 + Tolerance 1/min : +- 15
GUIDE SLEEVE POSITION	Total and Triming 1.
	+
andmal lavan	†
control lever position degree : - 3	LOW IDLE
Rarted speed rpm : 800	TOW INCE
·	+
Rack travel in mm: 0.50	+ control lever
Tolerance mm : + 0.20	+ position degree : 73.0

tolerance degree : + 4.0 control lever position degree : tolerance degree : +-Setting point w/out bumper spring 250 Rated speed rpm rack travel mm 6.00 : + 0.10Tolerance am Testing: 250 Rated speed rpm rack travel mm 6.50 Tolerance am : + 0.102.00 rack travel mm Rated speed rpm 400 Tolerance 1/min TORQUE CONTROL 700 Rated speed rpm 12.15 rack travel mm Tolerance mm : **←** 0.05 ANEROID/ALTITUDE COMPENSATOR TEST SETTING 500 Rated speed rpm 1500 Pressure hPa rack travel mm 12.15 Tolerance mm : + 0.05 500 Rated speed rpm Pressure hPa 8.50 rack travel mm Tolerance mm : +- 0.15 **MEASUREMENT** Rated speed rpm 500 Pressure hPa 900 rack travel mm 3.20 : ← 0.15 Tolerance mm 140 Pressure hPa 0.25 rack travel mm : + - 0.05Tolerance mm

Aneroid pressure hPa Rated speed rpm Del. quantity cm3/1000 strokes Tolerance cm3/1000 strokes Check tolerance cm3/1000s.	: 700 : 750.0 : ← 1.0 : ← 4.0
STARTING FUEL DEL	IVERY
Rated speed rpm rack travel mm Tolerance mm	: 100 : 17.00 : + 1.00
LOW IDLE	
Rated speed rpm	: 250
Rack travel in mm Tolerance mm Del. quantity	: 6.50 : + 0.10
cm3/1000 strokes	: 23.0
cm3/1000 strokes Check tolerance	: +- 3.0
cm3/1000s. Spreed	: +- 6.0
Tolerance cm3/1000 strokes	: 5.0
Check tolerance cm3/1000s.	: 7.0

#### Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 09.02.98 Test oil : ISO 4113

Combination No. : 0 401 876 808

Injection pump

Pump designation : PE6P120A320RS3355 EP type number : 0 411 826 814

**Governor** 

Governer design. : RSV300...1100P1A604

Governer no. : 0 421 833 485

Cust. part No. : 3825516 PO3 v. 11/95

Customer—spec. information
Customer : PENTA
Motor : TD1030ME
Power KW : 190.0

#### TEST BENCH REQUIREMENTS

Inlet Line : 3.1

Test oil inlet

temp. °C : 40
Tolerance °C : + 2.0

Overflow valve : 2 417 413 077

Inlet press. bar : 2.5 Tolerance bar : + 0.1

Overflow quantity

min. l/h : 85 Tolerance l/h : +- 10.0

Test nozzle holde

assembly : 1 688 901 101

Opening pressure

bar : 208.5 Tolerance bar : + 1.5 Test lines : 1 680 750 008

Outside diameter : 6.0

x inside diameter: 2.0 x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES

Set equal delivery quant.

per values \_\_\_\_

# BEGINNING OF DELIVERY

Test pressure bar : 26.0 Tolerance bar : + 1.0

Prestroke mm : 3.45
Tolerance mm : + 0.05
Check

tolerance mm : + 0.10

Rack travel in mm : 9.55
Tolerance mm : + 0.50

Firing order : 1-5-3-6-2-

: 4

Phasing : 0-60-120-180-240

: -300 Tolerance : +- 0.50

Check

tolerance \*NW : +- 0.75

Start of delivery mark

Tolerance :  $\leftarrow$  0.50

Check

tolerance \*NW : +- 0.75

Barrel no. : 1

BASIC SETTING

Rated speed rpm : 1100

South American in 12 50	
Rack travel in mm: 12.50 + Tolerance mm: : +- 0.05 +	FULL LOAD DELIVERY AT FULL LOAD STOP
Totel disce min	TOLL LOAD DELIVERY AT TOLL LOAD STOR
Del. quantity	Rated speed rpm : 1100
cm3/1000 strokes : 156.0	Aneroid pressure
	hPa : 1500
Tolerance	Del. quantity
cm3/1000 strokes : +- 1.0 +	cm3/1000 strokes : 156.0
***************************************	Tolerance
Check tolerance +	cm3/1000 strokes : + 1.0
cm3/1000s. : +- 4.0	Check tolerance
Connect	cm3/1000s. : +- 4.0
Spreed	Spreed Tolerance
Tolerance	om3/1000 strokes : 7.0
cm3/1000 strokes : 7.0	Check tolerance
the roces .	cm3/1000s. : 11.0
Check tolerance	
cm3/1000s. : 11.0	
+	CONTROL LEVER
+	
Rated speed rpm : 300	control lever
20 1 4 20 1 20 1	position degree : 62.0
Rack travel in mm: 4.70 + Tolerance mm: + 0.10 +	tolerance degree : +- 4.0
Tolerance mm : + 0.10 + Del. quantity +	control lever
cm3/1000 strokes : 23.0	position degree : 112.0
Tolerance +	tolerance degree : +- 4.0
cm3/1000 strokes : +- 2.5 +	7.0
Check tolerance	RATED SPEED
cm3/1000s. : + 5.0	rack travel mm : 11.50
Spreed	Rated speed rpm : 1135
Tolerance	Tolerance 1/min : + 5
cm3/1000 strokes : 3.0	
Check tolerance +	rack travel mm : 4.00
cm3/1000s. : 6.0	Rated speed rpm : 1190
†	Tolerance 1/min : + 15
(B) SETTING OF INJECTION PUMP	rack travel mm : 0.85
WITH GOVERNOR	Tolerance mm : +- 0.55
WITH GOVERNOR	Rated speed rpm : 1300
<u> </u>	aren elected lent
	rack travel mm : 4.00
GUIDE SLEEVE POSITION +	Rated speed rpm : 1195
+	Tolerance 1/min : + 15
†	
control lever	
position degree : - 3	
Rated speed rpm : 800	LOW IDLE
Rack travel in mm: 0.50	TOW INTE
Tolerance mm : + 0.50	
Total de likii	control lever
governor spring	position degree : 76.0
pre-tension +	tolerance degree : + 4.0
click setting x : 4.75	
+	control lever
+	position degree : 26.0

tolerance degree : + 4.0

Setting point w/out bumper spring

300 Rated speed rpm 4.20 rack travel mm Tolerance mm : + 0.10

Testing:

300 Rated speed rpm rack travel mm 4.70 : + 0.10Tolerance mm

2.00 rack travel mm : Rated speed rpm 380 Toleraice 1/min 30

TORQUE CONTROL

1100 Rated speed rpm 12.50 rack travel mm : ← 0.05 Tolerance mm

700 Rated speed rpm 12.50 rack travel mm : +- 0.10 Tolerance ma

ANEROID/ALTITUDE COMPENSATOR TEST

# SETTING

500 Rated speed rpm 1500 Pressure hPa 12.50 rack travel mm Tolerance mm : **←** 0.05

500 Rated speed rpm Pressure hPa 9.55 rack travel ma Tolerance mm : + 0.10

# **MEASUREMENT**

500 Rated speed rpm

Pressure hPa 555 rack travel mm 2.30 : + 0.15Tolerance mm

140 Pressure hPa 0.25 rack travel mm Tolerance mm : + 0.05

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure 1500 Rated speed rpm 700 Del. quantity cm3/1000 strokes : 178.0 Tolerance cm3/1000 strokes :  $\leftarrow$  3.0 Check tolerance cm3/1000s. : +-6.0 Spreed Tolerance cm3/1000 strokes : 7.0 Check tolerance 11.0

Aneroid pressure 500 Rated speed rpm Del. quantity cm3/1000 strokes : 127.0 Tolerance cm3/1000 strokes : +-1.0 Check tolerance cm3/1000s. 4.0

#### LOW IDLE

cm3/100Cs.

Rated speed rpm : 300 4.70 Rack travel in mm : Tolerance mm 0.10 Del. quantity cm3/1000 strokes : 23.0 Tolerance 2.5 cm3/1000 strokes : +-Check tolerance 5.0 cm3/1000s. Spreed Tolerance 3.0 cm3/1000 strokes : Check tolerance 6.0 cm3/1000s.

## Note remarks

Refer to Service Info for test and adjustment instructions. See microcard(s) W400/...

Edition : 11.02.98 Test oil : ISO 4113

Combination No. : 0 401 876 810

Injection pump

Pump designation : PE6P120A320R83359 EP type number : 0 411 826 815

**Governor** 

Governer design. : RSV325...1200P1A615

Governer no. : 0 421 833 503

Cust. part No. : 3825515 PO2 v. 10/95

Customer-spec. information Customer : PENTA Motor : TD 730ME Power KW : 150.0

# TEST BENCH REQUIREMENTS

Inlet line : 3.1

Test oil inlet

temp. °C : 40
Tolerance °C : + 2.0

Overflow valve : 2 417 413 077

Inlet press. bar : Tolerance bar : + 0.1

Overflow quantity

min. L/h : 220 Tolerance L/h : + 20.0

Test nozzle holde

: 1 688 901 101 assembly

Opening pressure

: 208.5 Tolerance bar : + 1.5 Test lines : 1 680 750 008

Outside diameter : 6.0

x inside diameter : x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES

Set equal delivery quant.

per values \_\_\_\_

# BEGINNING OF DELIVERY

Test pressure bar: 26.0 Tolerance bar : + 1.0

Prestroke mm : 3.35 Tolerance mm : + 0.05 Check

tolerance mm : +- 0.10

Rack travel in mm: 9.40 : **←** 0.50 Tolerance mm

Firing order : 1-5-3-6-2-

Phasing : 0-60-120-180-240

: -300

Tolerance : +- 0.50

Check

tolerance \*NW : + 0.75

Start of delivery mark

Tolerance :  $\leftarrow$  0.50

Check

tolerance \*NW : + 0.75

Barrel no. : 1

BASIC SETTING

Rated speed rpm : 1200

	+	
Rack travel in mm Tolerance mm	: 11.00 : + 0.05	FULL LOAD DELIVERY AT FULL LOAD STOR
Del. quantity cm3/1000 strokes	: 123.0	Rated speed rpm : 1200 Ameroid pressure
Tolerance cm3/1000 strokes	: + 1.0	hPa : 1500 Del. quantity cm3/1000 strokes : 123.0
Check tolerance cm3/1000s.	: + 4.0	Tolerance cm3/1000 strokes : +- 1.0 Check tolerance
Spreed		cm3/1000S. : + 4.0 Spreed
Tolerance cm3/1000 strokes	: 7.0	Tolerance cm3/1000 strokes : 7.0 Check tolerance
Check tolerance cm3/1000s.	: 11.0	cm3/1000s. : 11.0
	+	CONTROL LEVER
Rated speed rpm	: 325	control lever position degree : 70.0
Rack travel in mm Tolerance mm	1	tolerance degree : +- 4.0
Del. quantity cm3/1000 strokes Tolerance	: 25.0	<pre>control lever position degree : 120.0 tolerance degree : + 4.0</pre>
cm3/1000 strokes Check tolerance	+	RATED SPEED
cm3/1000s. Spreed Tolerance	: + 5.0	rack travel mm : 10.00 Rated speed rpm : 1235 Tolerance 1/min : +- 5
cm3/1000 strokes Check tolerance	+	rack travel mm : 4.00
cm3/1000s.	: 6.0	Rated speed rpm : 1280 Tolerance 1/min : + 15
(B) SETTING OF IN- WITH GOVERNOR	JECTION PUMP	rack travel mm : 0.85 Tolerance mm : + 0.55 Rated speed rpm : 1400
GUIDE SLEEVE POSI	TION	
control lever	Ţ	LOW IDLE
position degree Rated speed rpm		control lever position degree : 80.0
Rack travel in mm Tolerance mm	: 0.50 : + 0.20	tolerance degree : +- 4.0
governor spring pre-tension	‡	control lever position degree : 30.0 tolerance degree : + 4.0
click setting x	: 5.75	Setting point w/out bumper spring

Rated speed rpm rack travel mm Tolerance mm	: 325 : 4.10 : + 0.10	‡	Rated spec Del. quan cm3/1000 : Tolerance
Testing:		†	cm3/1000
Rated speed rom	: 325	1	Check tole cm3/1000s
Rated speed rpm rack travel man Tolerance man	: 4.60	+	Spreed
Tolerance mm	: <b>+</b> 0.10	†	Tolerance cm3/1000
rack travel mm	: 2.00	I	Check tol
rack travel mm Rated speed rpm Tolerance 1/min	: 390	+	cm3/1000s
Tolerance 1/min	: ← 30	İ	
		<del> </del>	Aneroid p
TORQUE CONTROL	. 4000	. †	hPa
Rated speed rpm rack travel mm Tolerance mm	11 00	I	Rated spe- Del. quan
Tolerance mm	: +- 0.05	Ţ	cm3/1000
		+	Tolerance
Rated speed rpm	: 700	†	cm3/1000
rack travel mm Tolerance mm	: + 0.10	Ī	Check tolem3/1000S
TOCCI CATOC TEST		+	3.1.27 1 2 3 3 3
ANEROID/ALTITUDE COMPENSATOR TEST		<u> </u>	
SETTING		+	LOW IDLE
Rated speed rpm Fressure hPa	: 500	+	Rated spe
Fressure hPa	: 1500	†	Rack trav
rack travel mm Tolerance mm	: +- 0.05	I	Tolerance
rocoranjos tam	•	+	Del. quan
Rated speed rpm	: 500	+	cm3/1000
Pressure hPa rack travel mm	: – : 9.40	t	Tolerance cm3/1000
Tolerance mm	· + 0.20	I	Check tol
1001		+	cm3/1000s
MEASUREMENT		+	Spreed
Kated speed rpm	: 500	Ī	Tolerance cm3/1000
ildeca opeca i piii		1	Check tol
Pressure hPa	: 490	+	cm3/1000S
rack travel mm	: 1.10 : +- 0.15	†	
Tolerance mm	: +- 0.15	I	
Pressure hPa	: 290	+	
rack travel min	: 0.25 : + 0.05	+	المراجعة المراجعة
Tolerance mm	: <b>←</b> 0.05	1	End of te
		+	
FUEL DELIVERY CHA	RACTERISTICS		
Ananaid nassure		+	
Aneroid pressure hPa	: 1500	I	
in <b>G</b>		ţ	

L19

Rated speed rpm	:	700
Del. quantity		
cm3/1000 strokes	:	141.0
Tolerance		
cm3/1000 strokes	: +-	3.0
Check tolerance		
cm3/1000s.	: +-	6.0
Spreed		
Tolerance		
cm3/1000 strokes	:	7.0
Check tolerance		
cm3/1000s.	:	11.0
	-	
Aneroid pressure	<del></del>	
Aneroid pressure	:	
	•	500
hPa Rated speed rpm	•	500
hPa Rated speed rpm Del. quantity	•	500
hPa Rated speed rpm Del. quantity cm3/1000 strokes	:	
hPa Rated speed rpm Del. quantity cm3/1000 strokes Tolerance	:	95.0
hPa Rated speed rpm Del. quantity cm3/1000 strokes Tolerance cm3/1000 strokes	:	
hPa Rated speed rpm Del. quantity cm3/1000 strokes Tolerance cm3/1000 strokes Check tolerance	:	95.0 - 1.0
hPa Rated speed rpm Del. quantity cm3/1000 strokes Tolerance cm3/1000 strokes	:	95.0
hPa Rated speed rpm Del. quantity cm3/1000 strokes Tolerance cm3/1000 strokes Check tolerance	:	95.0 - 1.0
hPa Rated speed rpm Del. quantity cm3/1000 strokes Tolerance cm3/1000 strokes Check tolerance	:	95.0 - 1.0
hPa Rated speed rpm Del. quantity cm3/1000 strokes Tolerance cm3/1000 strokes Check tolerance	:	95.0 - 1.0

Rated speed rpm	:	325	
Rack travel in mam Tolerance mm Del. quantity	: +-	4.60 0.10	
cm3/1000 strokes	:	25.0	
Tolerance cm3/1000 strokes	: +-	2.5	
Check tolerance cm3/1000S. Spreed	: +-	5.0	
Tolerance cm3/1000 strokes	:	3.0	
Check tolerance cm3/1000S.	:	6.0	

est specification sheet

#### Note remarks

Refer to Service Info for test and adjustment instructions. See microcard(s) W400/...

Edition : 05.02.98 Test oil : ISO 4113

Combination No. : 0 402 046 861

Injection pump

Pump designation : PE6P110A320RS3329 . EP type number : 0 412 016 743

6overnor

Governer design. : RQ325/1300PA1150 Governer no. : 0 421 801 716

Cust. part No. : 1284420/4

Customer spec. information Customer : DAF : NS156M Motor Power KW : 156.0

# TEST BENCH REQUIREMENTS

Inlet line : 3.2

Test oil inlet

temp. °C 40 : +- 2.0 Tolerance \*C

Overflow valve : 1 417 413 025

Inlet prese bar : 1.5 Tolerance bar : +- 0.1

Test nozzle holde

: 1 688 901 101 assembly

Opening pressure

: 208.5 bar Tolerance bar : + 1.5

Test Lines : 1 680 750 008

Outside diameter : 6.0

x inside diameter: 2.0 x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES

Set equal delivery quant.

per values \_\_\_\_\_

# BEGINNING OF DELIVERY

Test pressure bar : 26.0 Tolerance bar : + 1.0

Prestroke mm : 5.25 Tolerance mm : + 0.05

Check

: **←** 0.10 tolerance mm

Rack travel in mm: 20.50 Tolerance mm :  $\leftarrow$  0.50

Firing order : 1-5-3-6-2-

: 0-60-120-180-240 Phasing

: --300

: +- 0.50 Tolerance

Check

tolerance \*NW : + 0.75

Start of delivery mark

Tolerance : + 0.10

Check

tolerance \*NW : + 0.75

: 1 Barrel no.

BASIC SETTING

Rated speed rpm : 1000

Rack travel in mm: 11.85 Tolerance mm :  $\leftarrow$  0.05

Del. quantity cm3/1000 strokes	: 144.0	Tolerance mm : + 0.10
Tolerance	<del></del> ‡	Rated speed rpm : 590 guide sleeve
cm3/1000 strokes	: + 1.0	travel mm : 6.00 Tolerance mm : +- 0.10
Check tolerance cm3/1000s.	: + 4.0	Rated speed rpm : 1570
		guide sleeve
Spreed	‡	travel mm : 11.50 Tolerance mm : + 0.50
Tolerance cm3/1000 strokes	: 4.0	GUIDE SLEEVE POSITION
Check tolerance	: 7.5	00192 022572 1 00212011
U/30/ 15000 t	1	control lever
		position degree : 109
	+	Rated speed rpm : 650
Rated speed rpm	: 325	
responsible to the second second	+	Rack travel in mm: 20.00
Rack travel in man		Tolerance mm : + 0.80
Tolerance mm	: + 0.10	
Del. quantity	+	
cm3/1000 strokes	: 26.0	FULL LOAD DELIVERY AT FULL LOAD STOP
Tolerance cm3/1900 strokes		Rated speed rpm : 1000
Check tolerance	$\overline{I}$	Rated speed rpm : 1909 Aneroid pressure
cm3/1000s.	: + 5.0	hPa : 1000
Spreed	1	Del. quantity
Tolerance	+	cm3/1000 strokes : 144.0
cm3/1000 strokes	: 12.0	Tolerance
Check tolerance	+	cm3/1000 strokes : + 1.0
cm3/1000s.	: 15.0 +	Check tolerance
	†	cm3/1000s. : +- 4.0
(D) CETTAIC OF TAI	TECTION DIME	Spreed
(B) SETTING OF IN	DECITON FOME	Tolerance cm3/1000 strokes : 4.0
MT ILL GOAFIGNOS	I	Check tolerance
	I	cm3/1000s. : 7.5
GUIDE SLEEVE TRAV	EL +	
<b>0</b>	1751	
Rated speed rpm	; 1331	CONTROL LEVER
guide sleeve travel mm	: 6.37	CONTROL LEVER
Tolerance mm	: + 0.10	control lever
OCOLORO BR	1	position degree : 93.0
Rated speed rpm	: 325	tolerance degree : + 4.0
guide sleeve	+	
travel mm	: 1.99	RATED SPEED
Tolerance mm	: + 0.10 +	rack travel mm : 10.85
	+	Rated speed rpm : 1345
Rated speed rpm	: 1300 +	Tolerance 1/min : +- 5
guide sleeve	: 6.00	Check speed 1/min : + 10
travel mm Tolerance mm	: + 0.10	specu i/mili : T (U
IOTELIANCE (HIII	I .	rack travel mm : 4.00
Rated speed rpm	: 427	Rated speed rpm : 1450
guide sleeve	1	Tolerance 1/min : + 15
travel mm	: 3.54	

Check speed 1/min : +-20 : 0.50 : + 0.50 rack travel mm Tolerance m Rated speed rpm : 1600 LOW IDLE control lever position degree : 72.0 tolerance degree : - 4.0 Setting point w/out bumper spring Rated speed rpm : 225 CRT mm min. : > 5.90 Testing: 325 Rated speed rom : 4.50 rack travel mm Tolerance mm : + 0.10 2.00 rack travel mm Rated speed rpm : 415 TORQUE CONTROL Rated speed rpm 1000 11.85 rack travel mm : + 0.05 Tolerance ma Rated speed rpm 700 rack travel mm 11.85 Tolerance man : + 0.05 Rated speed rom : 1300 rack travel mm : 11.85 Tolerance mm : +- 0.05 ANEROID/ALTITUDE COMPENSATOR TEST SETTING 600 Rated speed rom 1000 Pressure hPa :

rack travel mm 7.35 : + 0.20 Tolerance mm **MEASUREMENT** Rated speed rpm : 600 370 Pressure hPa rack travel mm 10.75 Tolerance mm : + 0.05200 Pressure hPa rack travel mm 8.40 Tolerance mm : + 0.10FUEL DELIVERY CHARACTERISTICS Aneroid pressure 1000 700 Rated speed rpm Del. quantity cm3/1000 strokes : 145.0 Tolerance cm3/1000 strokes : +- 2.0 Check tolerance cm3/1000s.: +- 5.0 : 11.85 rack travel mm Tolerance mm : +- 0.05 Aneroid pressure 1000 Rated speed rpm Del. quantity cm3/1000 strokes : 94.0 Tolerance cm3/1000 strokes : +-1.0 Check tolerance cm3/1000s. : +- 3.5

LOW IDLE

Rated speed rpm : 325

Rack travel in mm : 4.50
Tolerance mm : + 0.10
Del. quantity
cm3/1000 strokes : 26.0
Tolerance
cm3/1000 strokes : + 2.5

rack travel mm

Rated speed rpm :

Tolerance mm

Pressure hPa

11.85

: +- 0.05

600

Check tolerance cm3/1000s. : + 5.0

Spreed Tolerance

Check tolerance Cm3/1000s: 12.0 Check tolerance Cm3/1000s. : 15.0

#### Note remarks

Refer to Service Info for test and adjustment instructions. See microcard(s) W400/...

Edition : 05.02.98 Test oil : ISO 4113

Combination No. : 0 402 046 881

Injection pump

Pump designation : PES6P110A320Rs3329

EP type number : 0 412 016 743

Governor

Governer design. : RQ325...1250PA1370

Governer no. : 0 421 801 828

Cust. part No. : 1305236

Customer-spec. information Customer : DAF Motor : NS177M Power KW : 177.0

# TEST BENCH REQUIREMENTS

Inlet line : 3.2

Test oil inlet

temp. °C : 40 Tolerance °C : +- 2.0

Overflow valve : 1 417 413 000

Inlet press. bar : 1.5
Tolerance bar : + 0.1

Overflow quantity

min. l/h : 140 Tolerance l/h : + 20.0

Test nozzle holde

assembly : 1 688 901 101

Opening pressure

bar : 208.5 Tolerance bar : + 1.5 Test lines : 1 680 750 008

Outside diameter : 2.0

x inside diameter: 6.0 x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES

Set equal delivery quant.

per values \_\_\_\_

BEGINNING OF DELIVERY

Test pressure bar : 26.0 Tolerance bar : + 1.0

Prestroke mm : 5.25
Tolerance mm : + 0.05

Check

tolerance mm :  $\leftarrow$  0.10

Rack travel in mm : 20.50 Tolerance mm : +- 0.50

Firing order : 1-5-3-6-2-

: 4

Phasing : 0-60-120-180-240

: -300

Tolerance : +- 0.50

Check

tolerance  $^{\circ}NW$  :  $\leftarrow$  0.75

Start of delivery mark

Tolerance : + 0.10

Check

tolerance °NW : +- 0.75

Barrel no. : 1

BASIC SETTING

Rated speed rpm : 1000

Rack travel in mm : 12.25 Tolerance mm : +- 0.05

	∔ guide sleeve
Del. quantity	+ travel mm : 3.48
cm3/1000 strokes : 149.5	Tolerance mm : + 0.10
Tolerance	Rated speed rpm : 590
cm3/1000 strokes : + 1.0	guide sleeve
CHD/ 1000 Strokes . The 1.0	travel mm : 6.00
Check tolerance	Tolerance mm : +- 0.10
cm3/1000s. $: + 4.0$	T Total article High : += 0.10
CHD/ (0005. ; += 4.0	Rated speed rpm : 1460
Chrosed	+ Rated speed rpm : 1460 + guide sleeve
Spreed	travel ma : 11.50
Talanana	Tolerance mm : + 0.50
Tolerance cm3/1000 strokes : 4.0	Toterance am : + 0.50
CM3/ 1000 Strokes : 4.0	T
Check tolerance	GUIDE SLEEVE POSITION
	I going special costition
cm3/7UUUS. : 7.5	Ť
-	T control lever
	+ position degree : 109
Rated speed rpm : 325	T position degree : 107
Rated speed rpm : 325	T control lever
Rack travel in mm : 4.40	
Tolerance mm : + 0.10	+ position degree : 109 + Rated speed rpm : 600
Del. quentity	T Marea speed (piii : 000
cm3/1000 strokes : 26.0	Rack travel in mm : 20.00
Tolerance	Tolerance mm : +- 0.80
cm3/1000 strokes : +- 3.0	
Check tolerance	I
cm3/1000s. : +- 6.0	FULL LOAD DELIVERY AT FULL LOAD STOP
Spreed	I TOLL LOAD DECIVERY AT TOLL LOAD STOP
Tolerance	Rated speed rpm : 1000
cm3/1000 strokes : 8.0	+ Aneroid pressure
Check tolerance	+ hPa : 1500
cm3/1000s. : 12.0	+ Del. quantity
CIRD/ 10000	+ cm3/1000 strokes : 149.5
	Tolerance
(B) SETTING OF INJECTION PUMP	+ cm3/1000 strokes : + 1.0
WITH GOVERNOR	+ Check tolerance
MILLI GOSEVIACIV	+ cm3/1000s. : +- 4.0
	Spreed
GUIDE SLEEVE TRAVEL	+ Tolerance
ANTRE AFFRE LIMITE	- cm3/1000 strokes : 4.0
Rated speed rpm : 1292	+ Check tolerance
guide sleeve	+ cm3/1000s. : 7.5
travel mm : 6.37	1
Tolerance mm : + 0.15	1
10001001001001	
Rated speed rpm : 325	
guide sleeve	+
travel mm : 1.99	+ control lever
Tolerance mm : + 0.20	+ position degree : 97.0
	+ tolerance degree : + 4.0
Rated speed rpm : 1000	+
guide sleeve	A RATED SPEED
travel mm : 6.00	rack travel mm : 11.25
Tolerance mm : + 0.10	Rated speed rpm : 1290
	+ Tolerance 1/min : + 5
Rated speed rpm : 426	Check
· · · · · · · · · · · · · · · · · · ·	+ speed 1/min : + 10
	•

rack travel mm : 4.00
Rated speed rpm : 1370
Tolerance 1/min : + 15
Check
speed 1/min : + 20
rack travel mm : 0.50
Tolerance mm : + 0.50
Rated speed rpm : 1500

LOW IDLE

control lever
position degree : 75.0
tolerance degree : + 4.0

Setting point w/out bumper spring

Rated speed rpm : 225

CRT mm min. : > 6.00

Testing:

Rated speed rpm : 325 rack travel mm : 4.40 Tolerance mm : + 0.10

rack travel mm : 2.00
Rated speed rpm : 415
Tolerance 1/min : + 20

TORQUE CONTROL
Rated speed rpm : 1000
rack travel mm : 12.25
Tolerance mm : + 0.05

Rated speed rpm : 1250 rack travel mm : 12.25 Tolerance mm : + 0.10

ANEROID/ALTITUDE COMPENSATOR TEST

SETTING

Rated speed rpm : 600
Pressure hPa : 1500
rack travel mm : 12.25
Tolerance mm : + 0.05

Rated speed rpm : 600

Pressure hPa : - 7.00 rack travel mm : 7.00 tolerance mm : + 0.20

**MEASUREMENT** 

Rated speed rpm : 600

Pressure hPa : 430 rack travel mm : 10.90 Tolerance mm : + 0.05

Pressure hPa : 220 rack travel mm : 8.10 Tolerance mm : + 0.10

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure

Rated speed rpm : 1000

Del. quantity

cm3/1000 strokes : 92.0

Tolerance

cm3/1000 strokes : + 1.0

Check tolerance

cm3/1000s. : +- 4.0

LOW IDLE

Rated speed rpm : 325

Rack travel in mm: 4.40
Tolerance mm: + 0.10
Del. quantity
cm3/1000 strokes: 26.0
Tolerance

cm3/1000 strokes : +- 3.0
Check tolerance
cm3/1000S. : +- 6.0

Spreed Tolerance

cm3/1000 strokes : 8.0

Check tolerance

cm3/1000s. : 12.0

## Note remarks

Refer to Service Info for test and adjustment instructions. See microcard(s) W400/...

Edition Test oil

: 09.02.98 : ISO 4113

Combination No. : 0 402 076 821

Injection pump

Pump designation : PES6P120A720RS3340

EP type number

: 0 412 026 773

Governor

Governer design. : RSV650...1050P8A566

: -6

Governer no.

: 0 421 833 615

Cust. part No.

Customer—spec. information

Customer

: NH

Motor

: EP 040 B

Power KW : 213.0

# TEST BENCH REQUIREMENTS

Inlet line : 4.2

Test oil inlet

temo. °C

40

Tolerance °C

Overflow vaive

: 2 417 413 686

Inlet press. bar : 1.5

Test nozzle holde

assembly

: 1 688 901 103

Opening pressure

har

208.5

Tolerance bar

: **←** 1.5

Test Lines

: 1 680 750 089

Outside diameter : 8.0

x inside diameter : 3.0 x length mm : 600

**REMARKS** 

(A) INJECTION PUMP SETTING VALUES

Set equal delivery quant.

per values \_\_\_\_\_

BEGINNING OF DELIVERY

Test pressure bar : 26.0 Tolerance bar : + 1.0

Prestroke mm 3.60

: + 0.05Tolerance mm

Check

: + 0.10tolerance mm

Rack travel in mm: 10.50 Tolerance mm : + 1.50

Firing order : 1-5-3-6-2-

: 0-60-120-180-240 Phasing

: -300

Tolerance : + - 0.50

Check

tolerance \*NW : +- 0.75

Start of delivery blocking

Check

tolerance \*NW : + - 0.30

Barrel no.

1 :

BASIC SETTING

Rated speed rpm : 1025

Rack travel in mm: 13.35

Tolerance mm : + 0.05	Rated speed rpm : 1025 Aneroid pressure
Del. quantity cm3/1000 strokes : 204.0	hPa : 1600 Del. quantity
Tolerance + 1.0	cm3/1000 strokes : 204.0 Tolerance
cm3/1000 strokes : + 1.0 + Check tolerance	cm3/1000 strokes : + 1.0 Check tolerance cm3/1000s. : + 6.0
cm3/1000s. : + 6.0	Spreed Tolerance
Spreed	cm3/1000 strokes : 5.0 Check tolerance
Tolerance cm3/1000 strokes : 5.0	cm3/1000s. : 9.0
Check tolerance cm3/1000s. : 9.0	CONTROL LEVER
	control lever
Rated speed rpm : 650 +	position degree : 90.0 tolerance degree : +- 4.0
Rated speed rpm : 650 +	toterance degree : 4.0
Rack travel in mm : 4.70 + Tolerance mm : + 0.10 + Del. quantity	ASSEMBLY GOVERNOR SETTING
cm3/1000 strokes : 23.0 +	Rated speed rpm : 1067
Tolerance + 3.0 + 3.0	rack travel mm : 12.30
Check tolerance +	Rated speed rpm : 1097
cm3/1000s. : +- 6.0	Tolerance 1/min : + 5 rack travel mm : 4.00
Spreed + Tolerance +	rack travel mm : 4.00
cm3/1000 strokes : 8.0 +	rack travel mm : 0.85
Check tolerance + cm3/1000s. : 12.0 +	Tolerance mm : + 0.55 Rated speed rpm : 1300
CIRS/ 10005.	Nated Speed (pill : 1500
(D) CETTAIG OF THE POTTON DUMP	Poted aread are 1069
(B) SETTING OF INJECTION PUMP WITH GOVERNOR	Rated speed rpm : 1068 rack travel mm : 12.30
<u> </u>	Rated speed rpm : 1098
	Tolerance 1/min : +- 5
GUIDE SLEEVE POSITION	rack travel mm : 4.00
Į	rack travel mm : 0.85
control lever	rack travel mm : 0.85 Tolerance mm : + 0.55
position degree : -3 Rated speed rpm : 800	
hated speed (pill) . Goo	Rated speed rpm : 1069
Rack travel in mm: 0.50	rack travel mm : 12.30
Tolerance mm : + 0.20	Rated speed rpm : 1099
governor spring	Tolerance 1/min : + 5
pre-tension +	rack travel mm : 4.00
click setting x : 2.00	rack travel mm : 0.85
	rack travel mm : 0.85 Tolerance mm : + 0.55
FULL LOAD DELIVERY AT FULL LOAD STOP	

Rated speed rpm		†
rack travel mm	: 12.30	Rated speed rpm : 650
		rack travel mm : 14.05
Rated speed rpm		Tolerance mm : + 0.15
Tolerance 1/min		+
rack travel man	: 4.00	
		+ ANEROID/ALTITUDE
rack travel mm	: 0.85	+ COMPENSATOR TEST
Tolerance mm	: +- 0.55	+
		+
		+ SETTING
Rated speed rpm	: 1071	+
rack travel mm	: 12.30	+ Rated speed rpm : 500
		+ Pressure hPa : 1600
Rated speed rpm	: 1101	+ rack travel mm : 14.00
Tolerance 1/min	; <del>+-</del> 5	→ Tolerance mm : + 0.15
rack travel mm		+
		Rated speed rpm : 500
rack travel mm	: 0.85	+ Pressure hPa : -
Tolerance mm	: + 0.55	rack travel mm : 7.90
		+ Tolerance mm : +- 0.15
		+
Rated speed rpm	: 1072	+ MEASUREMENT
rack travel mm	: 12.30	+
		Rated speed rpm : 500
Rated speed rpm	: 1102	+
Tolerance 1/min		Pressure hPa : 980
rack travel mm		rack travel mm : 12.25
		+ Tolerance mm : + 0.10
rack travel mm	: 0.85	+
Tolerance mm	: + 0.55	
		+ Start interlock
LOW IDLE		Rated speed rpm : > 100
		+
		+ Check
control lever		+ speed 1/min : > 80
position degree	: 73.0	+
	<u>.</u>	+
Setting point w/	out bumper spring	+ FUEL DELIVERY CHARACTERISTICS
	4 <b>2</b> 45	†
Rated speed rpm	: 650	1
rack travel mm Tolerance mm	: 4.20	+ Aneroid pressure
Tolerance ma	: <del>+-</del> 0.10	+ hPa : 1600
A		Rated speed rpm : 750
Testing:		+ Del. quantity
		+ cm3/1000 strokes : 230.0
Rated speed rpm	: 650	Tolerance
rack travel mm		- cm3/1000 strokes : + 3.0
Tolerance mm	: +- 0.10	+ Check tolerance
		+ cm3/1000s. : + 6.0
		<del>- +</del>
TORQUE CONTROL	4655	
Rated speed rpm		rack travel mm : 14.05
rack travel mm		Tolerance mm : + 0.15
Tolerance mm	: <b>←</b> 0.05	†
	750	†
Rated speed rpm		+ Aneroid pressure
rack travel mm	: 14.00	+ hPa : -
Tolerance mm	: <b>+</b> 0.10	+ Rated speed rpm : 500

Del. quantity cm3/1000 strokes : 86.0 Tolerance cm3/1000 strokes : + 1.0

Check tolerance

cm3/1000s.

## STARTING FUEL DELIVERY

Rated speed rpm 100 rack travel mm 20.50 : **←** 0.50 Tolerance man Del. quantity

cm3/1000 strokes : 140.0

Tolerance

cm3/1000 strokes : + 15.0

Check tolerance

cm3/1000s. : **←** 19.0

# LOW IDLE

Rated speed rpm : 650

Rack travel in mm: 4.70 Tolerance m :  $\leftarrow$  0.10 Del. quantity

cm3/1000 strokes : 23.0

Tolerance

cm3/1000 strokes : +-3.0 Check tolerance

cm3/1000s. : +- 6.0

Spread

Tolerance 8.0 cm3/1000 strokes :

Check tolerance

cm3/1000s. 12.0

# Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 06.02.98 Test oil : ISO 4113

Combination No. : 0 402 646 617

Injection pump

Pump designation : PE6P13OA32ORS7282 EP type number : 0 412 636 829

Governor

Governer design. : RQV300...900PA1059 Governer no. : 0 421 314 049

Cust. part No. : 865851-P08 V.09.97

Customer—spec. information Customer : PENTA Motor : TAD 1230 P

## TEST BENCH REQUIREMENTS

Inlet line : 3.1

Vibration damper

(RoBo diaphragm): 4.2

Test oil inlet

temp. °C : 40
Tolerance °C : + 2.0

Overflow valve : 2 417 413 077

Inlet press. bar : 1.5
Tolerance bar : + 0.1

Test nozzle holde

assembly : 1 688 901 105

Opening pressure

bar : 208.5 Tolerance bar : + 1.5 Test lines : 1 680 750 089

Outside diameter : 8.0

x inside diameter: 3.0 x length mm : 600

## REMARKS

(A) INJECTION PUMP SETTING VALUES

Set equal delivery quant.

per values \_\_\_\_

# BEGINNING OF DELIVERY

Test pressure bar : 26.0 Tolerance bar : + 1.0

Prestroke mm : 4.05
Tolerance mm : + 0.05
Check

tolerance mm : + 0.10

Rack travel in mm : 8.30 Tolerance mm : + 0.50

Firing order : 1-5-3-6-2-

: 4

Phasing : 0-60-120-180-240

: -300

Tolerance : + 0.50

Check

tolerance \*NW : + 0.75

# Start of delivery mark

Tolerance : + 0.50 Check

tolerance \*NW : + 0.75

Barrel no. : 1

## BASIC SETTING

Rated speed rpm : 700

<u>.</u>	<u> </u>
Rack travel in mm : 11.55	Rated speed rpm : 315
Tolerance mm : + 0.05	guide steeve
Total care in , , o.b.	travel mm : 1.98
No.	Tolerance mm : +- 0.25
Del. quantity - cm3/1000 strokes : 349.0 -	1 Toterance min : - 0.0
cm3/1000 strokes : 349.0	Data dama dama a 7/5
	Rated speed rpm : 365
Tolerance	guide sleeve
cm3/1000 strokes : +- 1.5	travel mm : 2.54
	Tolerance mm : + 0.25
Check tolerance -	<del>†</del>
cm3/1000s. : +- 5.0	Rated speed rpm : 420
er	guide sleeve
Spreed -	travel mm : 3.17
•	Tolerance mm : + 0.25
Tolerance	+
cm3/1000 strokes : 7.0	Rated speed rpm : 1210
•	guide sleeve
Check tolerance -	travel mm : 11.50
cm3/1000s. : 11.0	Tolerance mm : +- 0.50
	GUIDE SLEEVE POSITION
Rated speed rpm : 300	dozpe deleve i dozi i div
nated speed (pin . 500	
Rack travel in mm: 4.00	control lever
Tolerance mm : +- 0.10	position degree : - 1
	Rated speed rpm : 980
Del. quantity - cm3/1000 strokes : 23.0 -	T Kateu speed (pii) . 700
	Rack travel in mm : 16.50
Tolerance -	
$cm3/1000$ strokes : $\leftarrow$ 3.0	Tolerance mm : +- 1.30
Check tolerance	†
cm3/1000s. : + 6.0	WILL 1 AAA ARI TUWAN AR BUILL 1 AAA ARA
Spreed -	FULL LOAD DELIVERY AT FULL LOAD STOP
Tolerance	†
cm3/1000 strokes : 7.0	Rated speed rpm : 700
Check tolerance -	Aneroid pressure
cm3/1000s. : 11.0	+ hPa : 2000
•	+ Del. quantity
•	cm3/1000 strokes : 349.0
(B) SETTING OF INJECTION PUMP -	Tolerance
WITH GOVERNOR -	- cm3/1000 strokes : + 1.5
•	- Check tolerance
	+ cm3/1000s. : $+$ 5.0
GUIDE SLEEVE TRAVEL -	Spreed
•	+ Tolerance
Rated speed rpm : 928	cm3/1000 strokes : 7.0
guide sleeve	Check tolerance
travel mm : 7.72	+ cm3/1000s. : 11.0
Tolerance mm : + 0.25	+
•	+
Rated speed rpm : 300	<u> </u>
guide sleeve	CONTROL LEVER
travel mm : 1.81	1
Tolerance mm : + 0.25	control lever
reservation in the start	position degree : 61.0
Rated speed rpm : 650	tolerance degree : + 4.0
guide steeve	10001 4100 4091 00 1 1 110
travel mm : 5.16	control lever
Tolerance mm : + 0.25	position degree : 117.0
	position degree . Itt.0

tolerance degree	: ← 4.0	+ rack travel mm : 8.30 + Tolerance mm : +- 0.10
RATED SPEED rack travel mm Rated speed rpm	: 10.50	+ - MEASUREMENT
Rated speed rpm	: 915	+
Tolerance 1/min	: <del>←</del> 5	Rated speed rpm : 500
rack travel mm	: 4.00	Pressure hPa : 1390
Rated speed rpm	: 1000	rack travel mm : 2.90
Tolerance 1/min	: +- 15	Tolerance mma : + 0.20
rack travel mm	: 0.50	T Pressure hPa : 640
Tolerance mm	: +- 0.50	rack travel mm : 0.25
Tolerance mm Rated speed rpm	: 1100	Pressure hPa : 640 rack travel mm : 0.25 Tolerance mm : + 0.05
		. ‡
		FUEL DELIVERY CHARACTERISTICS
LOW IDLE		<u></u>
		Aneroid pressure
control lever		+ hPa : -
position degree	: 74.0	hPa : - Rated speed rpm : 700
tolerance degree	: <del></del>	→ Del. quantity
A 3 4		cm3/1000 strokes : 230.0
control lever	. 46.6	Tolerance
position degree tolerance degree	: 18.U	+ cm3/1000 strokes : + 1.5 + Check tolerance
tolerance degree	: +- 4.0	+ cm3/1000s. : + 5.0
Testing:		7 (115) 15555.
Dated aread non	. 3:171	†
rack travel wa	. 200	I
Rated speed rpm rack travel mm Tolerance mm	: +- 0.10	1
1000141100 11111		<u> </u>
rack travel mm	: > 5.60	+ LOW IDLE
Rated speed rpm	: 200	†
m A sub-	. 7/F	Rated speed rpm : 300
Rated speed rpm	: 365	+ + Rack travel in mm : 4.00
		Tolerance mm : 4.00
TORQUE CONTROL		Del. quantity
Rated speed rpm	: 700	- cm3/1000 strokes : 23.0
rack travel mm	: 11.55	+ Tolerance
Tolerance mm	: +- 0.05	+ cm3/1000 strokes : +- 3.0
		+ Check tolerance
ANEROID/ALTITUDE		+ Spreed
COMPENSATOR TEST		+ Tolerance
		+ cm3/1000 strokes : 7.0
OFTTING		+ Check tolerance + cm3/1000s. : 11.0
SETTING		I (11.0)
Rated speed rpm	: 500	<u> </u>
Pressure hPa	: 2000	+
rack travel mm	: 11.55	+
Tolerance mm	: ← 0.05	<del> </del>
		End of test specification sheet
Rated speed rpm	: 500	†
Pressure hPa	: -	+

M05

Note remarks

Refer to Service Info for test and adjustment instructions.

See microcard(s) W400/...

Edition : 25.11.97 : ISO 4113 Test oil

Combination No. : 0 402 646 623

Injection pump

Fump designation : PE6P120A320RS7288

: -10

EP type number : 0 412 626 918

Governor

Governer design. : RQV250...900PA1069

: -1

: 0 421 814 070 Governer no.

Cust. part No. : 866141 PO6 v. 11/97

Customer—spec. information

Customer : PENTA

: TAD 1030V Motor

TEST BENCH REQUIREMENTS

Inlet line : 3.1

Vibration

damper

(RoBo diaphragm) : 4.2

Test oil inlet

temp. °C Tolerance °C

Overflow valve : 2 417 413 077

Inlet press. bar : 2.5 Tolerance bar : + 0.1

Overflow quantity

: 300 min. L/h min. l/h : 300 Tolerance l/h : ÷ 20.0

Test nozzle holde

assembly : 1 688 901 105

Opening pressure

: 208.5

Tolerance bar : **←** 1.5

Test lines : 1 680 750 015

Outside diameter : 6.0

x inside diameter: 3.0 x length mm :

REMARKS

(A) INJECTION PUMP SETTING VALUES

Set equal delivery quant.

per values \_\_\_\_

BEGINNING OF DELIVERY

Test pressure bar : 26.0 Tolerance bar : + 1.0

Prestroke mm 3.45 : +- 0.05 Tolerance mm

Check

tolerance mm : +- 0.10

Rack travel in mm : 10.00

: ∹- 0.50 Tolerance mm

Firing order : 1-5-3-6-2-

Phasing : 0-60-120-180-240

: -300 : +- 0.50 Tolerance

Check

: +- 0.75 tolerance °NW

Start of delivery mark

: +- 0.50 Tolerance

Check

tolerance \*NW : **←** 0.75

MO7

Barrel no.	: 1 -	- guide sleeve - travel mm : 1.12 - Tolerance mm : + 0.25
BASIC SETTING	•	Rated speed rpm : 657
<b>.</b>	. 700	guide sleeve
Rated speed rpm	: 700 -	travel mm : 5.07 Tolerance mm : +- 0.25
n I 4 1 2	47 /5	Dated and the 245
Rack travel in mm Tolerance mm		- Rated speed rpm : 315 - guide sleeve
TOTE OF ICE IM		travel mm : 1.98
Del. quantity	•	Tolerance mm : + 0.25
cm3/1000 strokes	: 290.0	Bedeat and a 745
Tolerance		- Rated speed rpm : 365 - guide sleeve
cm3/1000 strokes	· + 1.0	f guide steeve - travel mm : 2.63
CINDA LOOP STLOKES		Tolerance mm : + 0.25
Check tolerance	•	-
cm3/1000s.	: +- 4.0	Rated speed rpm : 420
		guide sleeve
Spreed	•	travel mm : 3.17
<b>*</b> -1	•	Tolerance mm : + 0.25
Tolerance cm3/1000 strokes	• 60	Rated speed rpm : 1290
CHO/ IUUU STrokes	. 0.0	- Rated speed rpm : 1290 - guide sleeve
Check tolerance		travel mm : 11.50
cm3/1000s.	: 10.0	Tolerance mm : + 0.50
UIRO/ 10000.		Tocal division man
	•	CUITAGE OF EETIE DOCUTTON
Dadad annad wee	. 250	GUIDE SLEEVE POSITION
Rated speed rpm	: 250	
Rack travel in man	a: 7.70	control lever
Tolerance mm		position degree : - 1
Del. quantity		Rated speed rpm : 1150
cm3/1000 strokes	: 18.0	-
Tolerance		Rack travel in mm : 9.00
cm3/1000 strokes	: <del>←</del> 3.0	Tolerance mm : +- 3.00
Check tolerance		†
cm3/1000s.	: + 5.0	FULL LOAD DELIVERY AT FULL LOAD ST
Spreed Tolerance		L LOCK FOWN DEFINERS WE LOCK FOWN 21
cm3/1000 strokes	: 7.0	Rated speed rpm : 700
Check tolerance		Aneroid pressure
cm3/1000s.	: 11.0	hPa : 1500
	•	Del. quantity
		cm3/1000 strokes : 290.0
(B) SETTING OF IN	NJECTION PUMP	Tolerance
WITH GOVERNOR	•	cm3/1000 strokes : +- 1.0
		Check tolerance cm3/1000s. : + 4.0
GUIDE SLEEVE TRAN	/FI	- CM3/10005. : - 4.0 - Spreed
GOINE SPEEAR LUM		Tolerance
Rated speed rpm	: 949	cm3/1000 strokes : 6.0
guide sleeve		Check tolerance
travel mm	: 7.39	cm3/1000s. : 10.0
Tolerance mm	: + 0.25	+
Rated speed rpm	: 250	+

M08

## CONTROL LEVER

control lever

position degree : 64.0 tolerance degree : + 4.0

control lever

position degree : 119.0 tolerance degree : + 4.0

RATED SPEED

rack travel mm : 12.45 Rated speed rpm : 935 Tolerance 1/min : +- 5

rack travel mm : 4.00 Rated speed rpm : 1075 Tolerance 1/min : + 15

rack travel mm : 0.50
Tolerance mm : + 0.50
Rated speed rpm : 1150

## LOW IDLE

control lever

position degree : 74.0 tolerance degree : + 4.0

control lever

position degree : 24.0 tolerance degree : +- 4.0

Setting point w/out bumper spring

Rated speed rpm : 150

CRT mm min. :> 9.00

Testing:

Rated speed rpm : 250 rack travel mm : 7.70 Tolerance mm : + 0.10

Rated speed rpm : 350

TORQUE CONTROL

Rated speed rpm : 700 rack travel mm : 13.45 Tolerance mm : + 0.05

# ANEROID/ALTITUDE COMPENSATOR TEST

## SETTING

Rated speed rpm : 500
Pressure hPa : 1500
rack travel mm : 13.45
Tolerance mm : + 0.05

Rated speed rpm : 500
Pressure hPa : rack travel mm : 10.00
Tolerance mm : + 0.10

# **MEASUREMENT**

Rated speed rpm : 500

Pressure hPa : 200 rack travel mm : 10.30 Tolerance mm : + 0.10

Pressure hPa : 1090 rack travel mm : 13.15 Tolerance mm : + 0.05

# FUEL DELIVERY CHARACTERISTICS

Aneroid pressure

hPa : - 700

Del. quantity

cm3/1000 strokes : 176.0

Tolerance

cm3/1000 strokes : +- 1.0

Check tolerance

cm3/1000s. : +- 4.0

# LOW IDLE

Rated speed rpm : 250

Rack travel in mm: 7.70
Tolerance mm: + 0.10
Del. quantity
cm3/1000 strokes: 18.0
Tolerance

cm3/1000 strokes : +- 3.0

Check tolerance cm3/1000s. : +- 5.0

Spreed

Tolerance cm3/1000 strokes : 7.0

Check tolerance cm3/1000s. : 11.0

## Note remarks

Refer to Service Info for test and adjustment instructions. See microcard(s) W400/...

: 11.02.98 Edition Test oil : ISO 4113

Combination No. : 0 402 646 658

Injection pump

Pump designation : PE6F130A720RS7371 EP type number : 0 412 636 837

Governor

Governer design. : RQV250...900PA1215

Governer no. : 0 421 814 139

Cust. part No. : 3825482-P04 V.11/95

Customer-spec. information Customer : PENTA : TAMD 163 A Motor Power KW : 405.0

## TEST BENCH REQUIREMENTS

Inlet line : 4.2

Vibration damper

(RoBo diaphragm) : 3.1

Test oil inlet

temp. °C : +- 2.0 Tolerance °C

Overflow valve : 2 417 413 077

Inlet press. bar : Tolerance bar : + 0.1

Overflow quantity

min. l/h : 60 Tolerance l/h : + 10.0

Test nozzle holde

: 1 688 901 105 assembly

Opening pressure

: 208.5 : + 1.5 Tolerance bar

Test lines : 1 680 750 089

Outside diameter : 8.0

x inside diameter : 600 x length mm :

REMARKS

(A) INJECTION PUMP SETTING VALUES

Set equal delivery quant.

per values \_\_\_\_\_

# BEGINNING OF DELIVERY

Test pressure bar : 26.0 Tolerance bar : + 1.0

Prestroke mm : 3.70 : +- 0.05 Tolerance mm Check

tolerance mm : +- 0.10

Rack travel in mm: 7.60 Tolerance mm: +-0.50

: 1-5-3-6-2-Firing order

: 0-60-120-180-240 Phasing

: -300 Tolerance : +- 0.50

Check

tolerance \*NW : +- 0.75

Start of delivery mark

Tolerance : + - 0.50

Check

tolerance \*NW : +- 0.75

Barrel no. : 1

BASIC SETTING

Rated speed rpm : 900	guide sleeve travel mm : 1.98 Tolerance mm : + 0.25
Rack travel in mm: 13.20 Tolerance mm: + 0.05	Rated speed rpm : 365 guide sleeve travel mm : 2.47
Del. quantity cm3/1000 strokes : 377.0	Tolerance mm : + 0.25
Tolerance cm3/1000 strokes : + 1.5	guide sleeve travel mm : 4.40
Check tolerance cm3/1000s. : + 5.0	Rated speed rpm : 1160
Spreed	guide sleeve travel mm : 11.50 Tolerance mm : +- 0.50
Tolerance cm3/1000 strokes : 9.0	GUIDE SLEEVE POSITION
Check tolerance cm3/1000s. : 12.0	control lever
Rated speed rpm : 250	position degree : - 1 Rated speed rpm : 1030
Rack travel in mm: 5.00	Rack travel in mm : 11.00 Tolerance mm : +- 2.00
Tolerance mm : + 0.10  Del. quantity	
cm3/1000 strokes : 25.0 + Tolerance +	FULL LOAD DELIVERY AT FULL LOAD STOP
cm3/1000 strokes : + 3.0 + Check tolerance	Rated speed rpm : 900 Aneroid pressure hPa : 1500
cm3/1000s. : + 6.0 + 5preed + Tolerance	hPa : 1500 Del. quantity cm3/1000 strokes : 377.0
cm3/1000 strokes : 5.0 + Check tolerance +	Tolerance : + 1.5
cm3/1000s. : 8.0	check tolerance cm3/1000s. : +- 5.0 Spreed
(B) SETTING OF INJECTION PUMP WITH GOVERNOR	Tolerance cm3/1000 strokes : 9.0 Check tolerance
GUIDE SLEEVE TRAVEL	cm3/1000s. : 12.0
Rated speed rpm : 959	CONTROL LEVER
travel mm : 8.22 Tolerance mm : + 0.25	control lever
Rated speed rpm : 250	position degree : 63.0
	tolerance degree : +- 4.0
guide sleeve travel mm : 1.12 Tolerance mm : + 0.25	tolerance degree : +- 4.0  control lever  position degree : 118.0  tolerance degree : +- 4.0

M12

RATED SPEED rack travel mm Rated speed rpm Tolerance 1/min	: 12.20 : 930 : +- 5
rack travel mm Rated speed rpm Tolerance 1/min	: 4.00 : 1010 : + 15
rack travel mm Tolerance mma Rated speed rpm	
LOW IDLE	
control lever position degree tolerance degree	: 71.0 : + 4.0
control lever position degree tolerance degree	: 15.0 : + 4.0
Setting point w/o	out bumper spring
Rated speed rpm	: 150
CRT mm min.	: > 6.50
Testing:	
Rated speed rpm rack travel mm Tolerance mm	: 250 : 5.00 : + 0.10
Rated speed rpm	: 350
TORQUE CONTROL Rated speed rpm rack travel mm Tolerance mm	: 900 : 13.20 : + 0.05
Rated speed rpm rack travel mm Tolerance mm	
ANEROID/ALTITUDE COMPENSATOR TEST	

Pressure hPa rack travel man Tolerance man	: 1500 : 13.20 : + 0.05
Rated speed rpm Pressure hPa rack travel mm Tolerance mm	: 500 : 7.60 : + 0.20
MEASUREMENT	
Rated speed rpm	: 500
Pressure hPa rack travel mm Tolerence mm	: 1000 : 5.10 : + 0.20
Pressure hPa rack travel mm Tolerance mm	: 240 : 0.25 : + 0.05
FUEL DELIVERY CHA	RACTERISTICS
Ameroid pressure hPa Rated speed rpm Del. quantity cm3/1000 strokes	
Tolerance cm3/1000 strokes Check tolerance	: +- 3.0
cm3/1000s.	: + 6.0
Ameroid pressure hPa Rated speed rpm Del. quantity cm3/1000 strokes Tolerance cm3/1000 strokes Check tolerance cm3/1000s.	: - : 700 : 194.0 : + 1.5 : + 5.0
LOW IDLE	
Rated speed rpm	<b>:</b> 250

Rack travel in mm : 5.00
Tolerance mm : +- 0.10
Del. quantity
cm3/1000 strokes : 25.0

M13

SETTING

Rated speed rpm : 500

Tolerance cm3/1000 strokes Check tolerance cm3/1000s.	: +-	3.0 6.0
Spreed Tolerance		
cm3/1000 strokes Check tolerance	:	5.0
cm3/1000s.	:	8.0

#### Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 11.02.98 Test oil : ISO 4113

Combination No. : 0 402 646 962

Injection pump

Pump designation : PE6P130A720RS7137 EP type number : 0 412 636 806

Governor

Governer design: : RQ750PA865-2 Governer no: : 0 421 801 619

Cust. part No. : 864855-P04 v.10.94

Customer—spec. information Customer : PENTA Motor : TWD1620G

#### TEST BENCH REQUIREMENTS

Inlet line : 4.2

Vibration damper

(RoBo diaphragm) : 3.1

Test oil inlet

temp. °C : 40
Tolerance °C : + 2.0

Overflow valve : 2 417 413 046

Inlet press. bar : 1.5 Tolerance bar : + 0.1

Test nozzle holde

assembly : 1 688 901 019

Opening pressure

bar : 208.5 Tolerance bar : + 1.5 Test lines : 1 680 750 075

Outside diameter : 8.0

x inside diameter: 3.0 x length mm : 1000

#### REMARKS

(A) INJECTION PUMP SETTING VALUES

Set equal delivery quant.

per values \_\_\_\_\_

# BEGINNING OF DELIVERY

Test pressure bar : 26.0 Tolerance bar : + 1.0

Prestroke mm : 3.65
Tolerance mm : 

Chack

Chack

Check

tolerance mm : + 0.10

Rack travel in mm : 12.25 Tolerance mm : + 0.50

Firing order : 1-5-3-6-2-

4

Phasing : 0-60-120-180-240

: -300

Tolerance : + 0.50

Check

tolerance \*NW : + 0.75

Start of delivery mark

Tolerance : + 0.50

Check

tolerance °NW : +- 0.75

Barrel no. : 1

BASIC SETTING

Rated speed rpm : 700

Rack travel in mm: 12.25 Tolerance mm: + 0.05

Onl mand the			
Del. quantity cm3/1000 strokes	: 368.0	CONTROL LEVER	
Tolerance cm3/1000 strokes	: + 1.5	control lever position degree tolerance degree	
Check tolerance cm3/1000s.	: ← 5.0	RATED SPEED	: 11.20
Spreed		Rated speed rpm Tolerance 1/min	: 751
Tolerance cm3/1000 strokes	: 8.0	rack travel mm Rated speed rpm	: 4.00 : 781
Check tolerance cm3/1000s.	: 12.0	Tolerance 1/min	: <del>←</del> 7
		rack travel mma Tolerance mm Rated speed rpm	: 0.50 : + 0.50 : 850
Rack travel in man Tolerance man	: 3.90 : + 0.20	ASSEMBLY GOVERNOR	SETTING
Del. quantity	+	Rated speed rpm	: 748
cm3/1000 strokes	: 30.0	rack travel mm	
Tolerance	+		
cm3/1000 strokes	: + 3.0 +	Rated speed rpm	
Check tolerance	+	Tolerance 1/min	
cm3/1000s. Spreed	: + 5.0	rack travel mm	
Tolerance	+	rack travel mm	: 0.50
cm3/1000 strokes	: 5.0	Tolerance mm	: + 0.50
Check tolerance	†	Rated speed rpm	: 850
cm3/1000S.	: 8.0		
	+	Rated speed rpm	: 749
(B) SETTING OF IN. WITH GOVERNOR	JECTION PUMP	rack travel mm	: 11.20
	+	Rated speed rpm	
	+	Tolerance 1/min	
		rack travel mm	: 4.00
FULL LOAD DELIVERY	Y AT FULL LOAD STOP	made Americal am	. 0.50
Detect asset see	. 700	rack travel mm Tolerance mm	: 0.50 : + 0.50
Rated speed rpm		Rated speed rpm	
Aneroid pressure hPa	: - I	Rated speed (pill	. 050
Del. quantity	. I		
cm3/1000 strokes	· 368 0	Rated speed rpm	• 750
Tolerance	· 500.0	rack travel mm	
cm3/1000 strokes	+ 1.5	TOOK CI GVCC IMIT	
Check tolerance		Rated speed rpm	: 781
cm3/1000s.	: + 5.0	Tolerance 1/min	
Spreed	1	rack travel mm	
Tolerance	1	· weit wiwiw time	
cm3/1000 strokes	: 8.0	rack travel mm	: 0.50
Check tolerance		Tolerance mm	: <del>+-</del> 0.50
cm3/1000s.		Rated speed rpm	: 850
	+		-
	‡	Rated speed rpm	: 751

rack travel mm	: 11.20
Rated speed rpm	: 782
Tolerance 1/min	: + 5
rack travel mma	: 4.00
rack travel mm	: 0.50
Tolerance mm	: + 0.50
Rated speed rpm	: 850
Rated speed rpm	: 752
rack travel mms	: 11.20
Rated speed rpm	: 783
Tolerance 1/min	: +- 5
rack travel mm	: 4.00
rack travel mm Tolerance mm Rated speed rpm	:
Rated speed rpm	: 753
rack travel mm	: 11.20
Rated speed rpm	: 784
Tolerance 1/min	: ← 5
rack travel mm	: 4.00
rack travel mm	: 0.50
Tolerance mm	: + 0.50
Rated speed rpm	: 850

TORQUE CONTROL		
Rated speed rpm	:	700
rack travel mm	:	12.25
Tolerance mm	: +	- 0.05

## Note remarks

Refer to Service Info for test and adjustment instructions. See microcard(s) W400/...

: 11.02.98 Edition : ISO 4113 Test oil

Combination No. : 0 402 676 821

Injection pump

Pump designation : PE6P120A320LS7854 .

EP type number : 0 412 626 872

Governor

Governer design. : RSV550...1050P0A826

: -9

: 0 421 333 459 Governer no.

Cust. part No. : 0250746302

Customer-spec. information Customer : MB-NFZ : OM 441 LA Motor Power KW : 239.0

## TEST BENCH REQUIREMENTS

Inlet line : 3.1

Test oil inlet

temp. °C Tolerance °C

: 1 417 413 025 Overflow valve

Inlet press. bar : 1.5 Tolerance bar : + 0.1

Overflow quantity

: 115 min. L/h Tolerance l/h : + 10.0

Test nozzle holde

: 1 688 901 105 assembly

Opening pressure

: 208.5 : + 1.5 Tolerance bar

Test Lines : 1 680 750 075

Outside diameter : 8.0

x inside diameter: 3.0 x Length mm : 1000

## REMARKS

(A) INJECTION PUMP SETTING VALUES

Set equal delivery quant.

per values \_\_\_\_\_

# BEGINNING OF DELIVERY

Test pressure bar : 26.0 Tolerance bar : + 1.0

5.25 Prestroke mm Tolerance mm : +- 0.05 Check tolerance mm :  $\leftarrow$  0.10

Rack travel in mm : 20.50 : +- 0.50 Tolerance mm

: 6-3-5-2-4-Firing order

: 1

: 0-60-120-180-240 Phasing

Start of delivery mark

Barrel no.

# BASIC SETTING

Rated speed rpm : 1030

Rack travel in mm: 13.60 : +- 0.05 Tolerance mm

Del. quantity

cm3/1000 strokes : 224.0

Tolerance

cm3/1000 strokes : +- 1.0

	+ Check tolerance
Check tolerance cm3/1000s. : + 4.0	cm3/1000s. : + 4.0 Spreed Tolerance
Spreed	cm3/1000 strokes : 5.0 Check tolerance
Tolerance : 5.0	cm3/1000s. : 9.0
Check tolerance cm3/1000s. 9.0	CONTROL LEVER
Rated speed rpm : 550	control lever position degree : 88.0 tolerance degree : +- 4.0
Rack travel in mm: 3.90 Tolerance mm: + 0.10	ASSEMBLY GOVERNOR SETTING
Del. quantity cm3/1000 strokes : 19.0 Tolerance	Rated speed rpm : 1075 - rack travel mm : 12.60
<pre>cm3/1000 strokes : + 3.0 Check tolerance cm3/1000s. : + 6.0</pre>	Rated speed rpm : 1115 Tolerance 1/min : + 4
Spreed Tolerance	rack travel mm : 4.00
cm3/1000 strokes : 6.0 Check tolerance cm3/1000S. : 10.0	+ rack travel mm : 0.85 + Tolerance mm : + 0.55 + Rated speed rpm : 1300
(B) SETTING OF INJECTION PUMP	+ Rated speed rpm : 1076
WITH GOVERNOR	rack travel mm : 12.60
GUIDE SLEEVE POSITION	Rated speed rpm : 1116 Tolerance 1/min : + 4 rack travel mm : 4.00
control lever position degree : - 3 Rated speed rpm : 800	rack travel mm : 0.85 Tolerance mm : + 0.55 Rated speed rpm : 1300
Rack travel in mm : 0.50 Tolerance mm : + 0.20	Rated speed rpm : 1077 rack travel mm : 12.60
governor spring pre-tension click setting x : 1.50	Rated speed rpm : 1117 Tolerance 1/min : + 4 rack travel mm : 4.00
FULL LOAD DELIVERY AT FULL LOAD STOP	rack travel mm : 0.85 Tolerance mm : + 0.55 Rated speed rpm : 1300
Rated speed rpm : 1030 Aneroid pressure hPa : -	+ Rated speed rpm : 1078
hPa : - Del. quantity cm3/1000 strokes : 224.0 Tolerance	rack travel mm : 12.60 Rated speed rpm : 1118
cm3/1000 strokes : +- 1.0	Tolerance 1/min : + 4

rack travel mm	: 4.00
rack travel mm	: 0.85 : +- 0.55
Tolerance mm	
Rated speed rpm	: 1300
Rated speed rpm	: 1079
rack travel mm	: 12.60
Rated speed rpm	: 1119
Tolerance 1/min	: 1119 : + 4 : 4.00
rack travel mm	: 4.00
rack travel mm	: 0.85
Tolerance mm Rated speed rpm	: + 0.55
kated speed rpm	: 1500
rack travel mm	: 12.60
rack travel mm	: 4.00
	0.05
rack travel mm Tolerance mm	: 0.85 : + 0.55
rocci arec ima	
LOW IDLE	
control lever	
	: 67.0
position degree tolerance degree	: +- 4.0
Setting point w/o	out bumper spring
Rated speed rpm	: 450
CRT mm min.	: > 8.50
Testing:	
Rated speed rpm	: 550
rack travel mm	: 3.90 : +- 0.10
Tolerance mm	: +- 0.10
rack travel mm	
Rated speed rom	: 565
Tologopos 4/sig	
Rated speed rpm Tolerance 1/min	: + 20
Tolerance 1/min SET IDLE AUXILIAR	
	Y SPRING
SET IDLE AUXILIAR	Y SPRING
SET IDLE AUXILIAR rack travel mma TORQUE CONTROL	Y SPRING : 2.00
rack travel mm  TORQUE CONTROL Rated speed rpm	: 2.00 : 1030
SET IDLE AUXILIAR rack travel mma TORQUE CONTROL	: 2.00 : 1030

Rated speed rpm rack travel mm	: 970 : 13.90
Tolerance mm	: + 0.10
Rated speed rpm	: 750
rack travel mm Tolerance mm	: 14.20 : + 0.10
FUEL DELIVERY CHA	RACTERISTICS
Aneroid pressure	: -
Rated speed rpm	: 750
rack travel mm	: 14.20 : +- 0.10
Tolerance mm Del. quantity	: +- 0.10
cm3/1000 strokes	: 244.0
Tolerance cm3/1000 strokes	: + 1.0
Check tolerance	; +- 1.0
cm3/1000s.	: ← 4.0
Spreed Tolerance	
cm3/1000 strokes	: 8.0
Check tolerance	. 12.0
cm3/1000s.	: 12.0
STARTING FUEL DEL	IVERY
Rated speed rpm	: 100
Del. quantity	
cm3/1909 strokes	: 250.0
cm3/1900 strckes Tolerance cm3/1000 strokes	: 250.0
cm3/1900 strokes Tolerance cm3/1000 strokes Check tolerance	: 250.0 : + 15.0
cm3/1900 strckes Tolerance cm3/1000 strokes	: 250.0
cm3/1900 strokes Tolerance cm3/1000 strokes Check tolerance	: 250.0 : + 15.0
cm3/1000 strokes Tolerance cm3/1000 strokes Check tolerance cm3/1000s.	: 250.0 : + 15.0
cm3/1900 strokes Tolerance cm3/1000 strokes Check tolerance cm3/1000s.	: 250.0 : + 15.0 : + 19.0
cm3/1000 strokes Tolerance cm3/1000 strokes Check tolerance cm3/1000s.	: 250.0 : + 15.0
cm3/1909 strokes Tolerance cm3/1900 strokes Check tolerance cm3/1900s.  LOW IDLE Rated speed rpm Rack travel in mm	: 250.0 : + 15.0 : + 19.0 : 550 : 3.90
cm3/1909 strokes Tolerance cm3/1900 strokes Check tolerance cm3/1900s.  LOW IDLE Rated speed rpm Rack travel in mm Tolerance mm	: 250.0 : + 15.0 : + 19.0 : 550
cm3/1000 strokes Tolerance cm3/1000 strokes Check tolerance cm3/1000s.  LOW IDLE Rated speed rpm Rack travel in mm Tolerance mm Del. quantity cm3/1000 strokes	: 250.0 : + 15.0 : + 19.0 : 550 : 3.90
cm3/1000 strokes Tolerance cm3/1000 strokes Check tolerance cm3/1000s.  LOW IDLE Rated speed rpm Rack travel in mm Tolerance mm Del. quantity cm3/1000 strokes Tolerance	: 250.0 : + 15.0 : + 19.0 : 550 : 3.90 : + 0.10 : 19.0
cm3/1000 strokes Tolerance cm3/1000 strokes Check tolerance cm3/1000s.  LOW IDLE Rated speed rpm Rack travel in mm Tolerance mm Del. quantity cm3/1000 strokes Tolerance cm3/1000 strokes	: 250.0 : + 15.0 : + 19.0 : 550 : + 3.90 : + 0.10
cm3/1000 strokes Tolerance cm3/1000 strokes Check tolerance cm3/1000s.  LOW IDLE Rated speed rpm Rack travel in mm Tolerance mm Del. quantity cm3/1000 strokes Tolerance	: 250.0 : + 15.0 : + 19.0 : 550 : 3.90 : + 0.10 : 19.0

Tolerance cm3/1000 strokes : 6.0 Check tolerance cm3/1000s. : 10.0

#### Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 06.02.98 Test oil : ISO 4113

Combination No. : 0 402 736 858

Injection pump

Pump designation : PES6P110A120RS7214 . EP type number : 0 412 716 805

Governor

Governer design. : RQV350...1200PA964

: -28K

Governer no. : 0 421 815 428

Cust. part No. : 3282464

Customer—spec. information Customer : CUMMINS Motor : 6CTA-A Power KW : 156.0

### TEST BENCH REQUIREMENTS

Inlet line : 3.2

Test oil inlet

temp. °C : 40
Tolerance °C : +- 2.0

Overflow valve : 2 417 413 093

Inlet press. bar : 1.5

Overflow quantity

min. L/h : 120 Tolerance L/h : + 10.0

Test nozzle holde

assembly : 1 688 901 101

Opening pressure

bar : 208.5 Tolerance bar : + 1.5 Test lines : 1 680 750 008

Outside diameter : 6.0

x inside diameter: 2.0

x Length mm : 600

#### REMARKS

(A) INJECTION PUMP SETTING VALUES

Set equal delivery quant.

per values \_\_\_\_\_

# BEGINNING OF DELIVERY

Test pressure bar : 26.0 Tolerance bar : + 1.0

Prestroke mm : 4.40
Tolerance mm : + 0.05

Check

tolerance mm : + 0.10

Rack travel in mm : 10.50 Tolerance mm : + 1.50

Firing order : 1-5-3-6-2-

: 4

Phasing : 0-60-120-180-240

: -300

Tolerance  $: \leftarrow 0.50$ 

Check

tolerance \*NW : +- 0.75

Start of delivery blocking

\*NW after s.o.d. : 5.50 Tolerance : + 0.50

Check

tolerance \*NW : +- 0.75

Barrel no. : 1

#### BASIC SETTING

Rated speed rpm : 1200

	1
Rack travel in mm : 12.35 Tolerance mm : + 0.05	Rated speed rpm : 700 guide sleeve travel mm : 6.10 Tolerance mm : + 0.20
Del. quantity cm3/1000 strokes : 148.5	+ Tolerance mm : + 0.20 + Rated speed rpm : 1400
Tolerance cm3/1000 strokes : + 1.0	guide sleeve travel mm : 10.90 Tolerance mm : + 0.20
Check tolerance cm3/1000s. : + 4.0	GUIDE SLEEVE POSITION
Spreed	t doing believe room tow
Tolerance : 5.0	control lever position degree : - 1 Rated speed rpm : 1330
Check tolerance : 9.0	Rack travel in mm: 16.50 Tolerance mm: + 2.70
Rated speed rpm : 350	FULL LOAD DELIVERY AT FULL LOAD
Rack travel in mm : $5.50$ Tolerance mm : $\leftarrow$ 0.10	Rated speed rpm : 1200 Aneroid pressure
Del. quantity	+ hFa : 1200
cm3/1000 strokes : 30.0 Tolerance	Del. quantity - cm3/1000 strokes : 148.5
cm3/1000 strokes : + 3.0	+ Tolerance
Check tolerance cm3/1000s. : +- 5.0	cm3/1000 strokes : + 1.0 Check tolerance
Spreed Tolerance	- cm3/1000s. : +- 4.0 - Spreed
cm3/1000 strokes : 8.0	+ Tolerance
Check tolerance cm3/1000s. : 12.0	+ cm3/1000 strokes : 5.0 + Check tolerance
	cm3/1000s. : 9.0
(B) SETTING OF INJECTION PUMP WITH GOVERNOR	
	CONTROL LEVER
GUIDE SLEEVE TRAVEL	control lever
Rated speed rpm : 1200 guide sleeve	position degree : 64.0 tolerance degree : +- 4.0
travel mm : 9.10	control lever
Tolerance mm : + 0.10	position degree : 119.0 tolerance degree : +- 4.0
Rated speed rpm : 350 guide sleeve	+ RATED SPEED
travel mm : 1.80 Tolerance mm : +- 0.20	rack travel mm : 11.30 Rated speed rpm : 1245 Tolerance 1/min : +- 5
Rated speed rpm : 450	rack travel mm : 4.00
guide sleeve travel mm : 3.30 Tolerance mm : +- 0.20	+ Rated speed rpm : 1385 + Tolerance 1/min : + 15

STOP

rack travel mm Tolerance mm Rated speed rpm	: 0.50 : ← 0.50 : 1500
LOW IDLE	
control lever position degree tolerance degree	: 65.0 : ← 4.0
control lever position degree tolerance degree	: 15.0 : + 4.0
Setting point w/o	out bumper spring
Rated speed rpm	: 275
CRT mm min.	: > 7.20
Testing:	
Rated speed rpm rack travel mm Tolerance mm	: 350 : 5.50 : + 0.10
Rated speed rpm	: 423
TORQUE CONTROL Rated speed rpm rack travel mm Tolerance mm	: 1200 : 12.35 : + 0.05
Rated speed rpm rack travel mm Tolerance mm	: 650 : 11.10 : + 0.20
Rated speed rpm rack travel mm Tolerance mm	: 550 : 11.00 : ← 0.20
ANEROID/ALTITUDE COMPENSATOR TEST	
SETTING	
Rated speed rpm Pressure hPa rack travel mm Tolerance mm	: 1200 : 1200 : 12.35 : ← 0.05
Rated speed rpm	: 1200

M24

Pressure hPa rack travel mm Tolerance mm	: - : 7.90 : + 0.20
MEASUREMENT	
Rated speed rpm	: 1200
Pressure hPa rack travel mm Tolerance mm	: 575 : 11.40 : + 0.20
Pressure hPa rack travel mm Tolerance mm	: 225 : 8.95 : + 0.05
Start interlock	
Rated speed rpm Rated speed rpm	: > 100 : < 290
Check speed 1/min Check	: > 80
speed 1/min	: < 300
FUEL DELIVERY CHA	RACTERISTICS
Aneroid pressure	. 1200
hFa Rated speed rpm	: 1200 : 650
hFa Rated speed rpm Del. quantity cm3/1000 strokes	: 650
hFa Rated speed rpm Del. quantity cm3/1000 strokes Tolerance cm3/1000 strokes	: 650 : 154.0
hFa Rated speed rpm Del. quantity cm3/1000 strokes Tolerance	: 650 : 154.0
hFa Rated speed rpm Del. quantity cm3/1000 strokes Tolerance cm3/1000 strokes Check tolerance cm3/1000s.	: 650 : 154.0 : ← 3.0
hFa Rated speed rpm Del. quantity cm3/1000 strokes Tolerance cm3/1000 strokes Check tolerance cm3/1000s. Spreed Tolerance	: 650 : 154.0 : ← 3.0 : ← 6.0
hFa Rated speed rpm Del. quantity cm3/1000 strokes Tolerance cm3/1000 strokes Check tolerance cm3/1000s. Spreed Tolerance cm3/1000 strokes Check tolerance cm3/1000 strokes Check tolerance cm3/1000s.	: 650 : 154.0 : ← 3.0 : ← 6.0 : 8.0 : 12.0
hFa Rated speed rpm Del. quantity cm3/1000 strokes Tolerance cm3/1000 strokes Check tolerance cm3/1000s. Spreed Tolerance cm3/1000 strokes Check tolerance	: 650 : 154.0 : ← 3.0 : ← 6.0 : 8.0
hFa Rated speed rpm Del. quantity cm3/1000 strokes Tolerance cm3/1000 strokes Check tolerance cm3/1000s. Spreed Tolerance cm3/1000 strokes Check tolerance cm3/1000s.  rack travel mm Tolerance mm	: 650 : 154.0 : ← 3.0 : ← 6.0 : 8.0 : 12.0
hFa Rated speed rpm Del. quantity cm3/1000 strokes Tolerance cm3/1000 strokes Check tolerance cm3/1000s. Spreed Tolerance cm3/1000 strokes Check tolerance cm3/1000s.  rack travel mm Tolerance mm  Aneroid pressure hPa Rated speed rpm	: 650 : 154.0 : ← 3.0 : ← 6.0 : 8.0 : 12.0
hFa Rated speed rpm Del. quantity cm3/1000 strokes Tolerance cm3/1000 strokes Check tolerance cm3/1000 strokes Check tolerance cm3/1000 strokes Check tolerance cm3/1000 strokes Check tolerance cm3/1000s.  rack travel mm Tolerance mm  Aneroid pressure hPa Rated speed rpm Del. quantity cm3/1000 strokes	: 650 : 154.0 : + 3.0 : + 6.0 : 8.0 : 12.0 : 17.00 : + 0.20
hFa Rated speed rpm Del. quantity cm3/1000 strokes Tolerance cm3/1000 strokes Check tolerance cm3/1000s. Spreed Tolerance cm3/1000 strokes Check tolerance cm3/1000s.  rack travel mm Tolerance mm  Aneroid pressure hPa Rated speed rpm Del. quantity	: 650 : 154.0 : ← 3.0 : ← 6.0 : 8.0 : 12.0 : 11.00 : ← 0.20

# STARTING FUEL DELIVERY

Set starting CRT at K-cam.

Rated speed rpm : 100
rack travel rmm : 11.20
Tolerance rmm : + 0.50
Del. quantity
cm3/1000 strokes : 155.0
Tolerance
cm3/1000 strokes : + 20.0
Check tolerance
cm3/1000s. : + 25.0

# LOW IDLE

Rated speed rpm 350 Rack travel in mm: 5.50 Tolerance mm 0.10 Del. quantity cm3/1000 strokes : 30.0 Tolerance cm3/1000 strokes : +-3.0 Check tolerance cm3/1000s.5.0 Spreed Tolerance cm3/1000 strokes : 8.0 Check tolerance cm3/1000s. : 12.0

#### Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 05.02.98 Test oil : ISO 4113

Combination No. : 0 402 746 609A

Injection pump

Pump designation : PES6P130A720RS7411 .

EP type number : 0 412 736 808

6overnor

Governer design. : RQ275/950PA1274 Governer no. : 0 421 801 807

Cust. part No. : 221 574

Customer spec. information

Customer : RABA

Motor : UTLL u. TLL206E2

Power KW : 206.0

# TEST BENCH REQUIREMENTS

Inlet line : 4.2

Test oil inlet

temp. °C : 40
Tolerance °C : + 2.0

Overflow valve : 1 417 413 047

Inlet press. bar : 1.5 Tolerance bar : + 0.1

Overflow quantity

min. L/h : 160 Tolerance L/h : + 20.0

Test nozzle holde

assembly : 1 688 901 105

Opening pressure

bar : 208.5 Tolerance bar : + 1.5 Test Lines : 1 680 750 089

Outside diameter : 8.0

x inside diameter: 3.0 x length mm : 600

#### REMARKS

(A) INJECTION PUMP SETTING VALUES

Set equal delivery quant.

per values \_\_\_\_\_

# BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : + 1.0

Prestroke mm : 5.50
Tolerance mm : + 0.05

Check

tolerance mm : + 0.10

Rack travel in mm : 20.50 Tolerance mm : + 0.50

Firing order : 1-5-3-6-2-

: 4

Phasing : 0-60-120-180-240

: -300 Tolerance : + 0.50

Check

tolerance  $^{\circ}NW$  :  $\leftarrow$  0.75

Start of delivery mark

Tolerance :  $\leftarrow$  0.50

Check

tolerance \*NW : + 0.75

Barrel no. : 1

#### BASIC SETTING

Rated speed rpm : 600

Rack travel in mm : 12.60 Tolerance mm : + 0.05

		∔ guide sleeve	
Del. quantity		travel mm	: 4.25
cm3/1000 strokes :	246.0	Tolerance mm	: ← 0.10
		+	
Tolerance		+ Rated speed rpm	: 450
cm3/1000 strokes :	<b>←</b> 1.0	🕂 guide sleeve	
		🕂 travel mm	: 6.00
Check tolerance		+ Tolerance mm	: <b>+</b> 0.10
cm3/1000s. :	<b>←</b> 4.0	+	
		+ Rated speed rpm	: 1290
Spreed		+ guide sleeve	
		+ travel mm	: 11.50
Tolerance		† Tolerance mm	: <del>+-</del> 0.50
cm3/1000 strokes :	5.0	†	
<b>~!</b>		CUITAGE CU 55745 2007	TTON
Check tolerance		+ GUIDE SLEEVE POSI	LION
cm3/1000s. :	9.0	T Dated and mm	. 11/7
		+ Rated speed rpm	: 1147
		T Rack travel in mm	• 11 60
Rated speed rpm :	275	Tolerance mm	: + 1.30
Rated Speed Pail .	213	I rocer direct limit	• • • • • • • • • • • • • • • • • • • •
Rack travel in mm :	4.20	ļ	
	+ 0.10	FULL LOAD DELIVER	Y AT FULL LOAD
Del. quantity	37.3	+	
cm3/1000 strokes :	24.0	Rated speed rpm	: 600
Tolerance		+ Aneroid pressure	
cm3/1000 strokes :	<b>⊹</b> 3.0	→ hPa	: 1500
Check tolerance		<pre>Del. quantity</pre>	
cm3/1000s. :	← 6.0	cm3/1000 strokes	: 246.0
Spreed		+ Tolerance	
Tolerance		+ cm3/1000 strokes	: +- 1.0
cm3/1000 strokes :	8.0	+ Check tolerance	
Check tolerance		+ cm3/1000s.	: <del>←</del> 4.0
cm3/1000s. :	12.0	+ Spreed	
		+ Tolerance	
		cm3/1000 strokes	: 5.0
(B) SETTING OF INJE	CTION PUMP	+ Check tolerance	. 0.0
WITH GOVERNOR		+ cm3/1000s.	: 9.0
		<b>†</b>	
GUIDE SLEEVE TRAVEL		I	
GOIDE SECENE MANCE	•	CONTROL LEVER	
Rated speed rpm :	1103	1	
guide sleeve		+ control lever	
travel mm :	6.55	<pre>position degree</pre>	: 33.0
	+ 0.15	+ tolerance degree	
		+	
Rated speed rpm :	275	† control lever	
guide sleeve		position degree	: 94.0
travel mm :	2.06	+ tolerance degree	: <del>+-</del> 4.0
Tolerance mm :	<b>←</b> 0.20	+	
	1050	+ RATED SPEED	44
Rated speed rpm :	1050	+ rack travel mm	: 11.60
guide sleeve	4.00	+ Rated speed rpm	: 1095
travel mm :	6.00	† Tolerance 1/min	: +- 5
Tolerance mm :	+ 0.10	†	. / 00
Basal and all and a	755	+ rack travel mm	: 4.00
Rated speed rpm :	355	Rated speed rpm	
		+ Tolerance 1/min	: + 15

STOP

rack travel mm : 0.50 : ← 0.50 Tolerance mm Rated speed rpm : 1200 LOW IDLE control lever position degree : 73.0 tolerance degree : +- 4.0 control lever position degree 11.0 tolerance degree : + 4.0 Setting point w/out bumper spring Rated speed rom : 175 CRT mem main. : > 7.22 Testing: Rated speed rom 275 : rack travel mm 4.20 : + - 0.10Tolerance mm 2.00 rack travel mm : Rated speed rpm 346 20 Tolerance 1/min : +-TORQUE CONTROL Rated speed rpm 600 rack travel mm 12.60 : +- 0.05 Tolerance mm Rated speed rpm : 1050 rack travel mm : 12.60 Tolerance mm : +- 0.10ANEROID/ALTITUDE COMPENSATOR TEST SETTING

Rated speed rpm : 500
Pressure hPa : 1500
rack travel mm : 12.60
Tolerance mm : + 0.05

Rated speed rpm : 500
Pressure hPa : rack travel mm : 8.20

Tolerance mm : +- 0.20

MEASUREMENT

Rated speed rpm : 500

Pressure hPa : 260
rack travel mm : 9.20

: + 0.15

100

195

Pressure hPa : 440 rack travel mm : 11.00 Tolerance mm : +- 0.05

Start interlock

Rated speed rpm : <
Rated speed rpm : >

Tolerance man

Check
speed 1/min : < 80
Check
speed 1/min : > 215

# FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : 1500
Rated speed rpm : 1050
Del. quantity
cm3/1000 strokes : 235.0
Tolerance
cm3/1000 strokes : + 3.0
Check tolerance
cm3/1000s. : + 6.0

Aneroid pressure
hPa : Rated speed rpm : 500
Del. quantity
cm3/1000 strokes : 147.0
Tolerance
cm3/1000 strokes : + 2.0
Check tolerance
cm3/1000s. : + 4.0

# STARTING FUEL DELIVERY

Rated speed rpm : 100 rack travel mm : 20.50 Tolerance mm : + 0.50 Del. quantity cm3/1000 strokes : 110.0

Tolerance		
cm3/1000 strokes	: +-	20.0
Check tolerance		
cm3/1000S	: +-	24.0

Rated speed rpm	:	275	
	: : +	4.20 - 0.10	
Del. quantity cm3/1600 strokes Tolerance	:	24.0	
cm3/1000 strokes Check tolerance	: +	- 3.0	
cm3/10005. Spreed	: +	- 6.0	
Tolerance cm3/1000 strokes Check tolerance	:	8.0	
cm3/1000s.	:	12.0	

#### Note remarks

Refer to Service Info for test and adjustment instructions. See microcard(s) W400/...

Edition Test oil : ISO 4113

: 05.02.98

Combination No. : 0 402 746 637

Injection pump

Pump designation : PES6P120A320RS7449

EP type number : 0 412 726 974

Governor

Governer design. : RQ275/1050PA1372

Governer no. : 0 421 801 830

Cust. part No. : CCEP 5169- 66/253

Customer-spec. information

Customer : RENAULT V.I.

: MI7RO62045 B41 Motor : MI7R062 Power KW : 186.0 Motor

# TEST BENCH REQUIREMENTS

Inlet line : 3.1

Test oil inlet

tcmp. °C : 40
Tolerance °C : + 2.0

Overflow valve : 2 417 413 078

Inlet press. bar : 2.5 Tolerance bar : + 0.1

Overflow quantity min. l/h : 320
Tolerance l/h : + 20.0

Test nozzle holde

: 1 688 901 101 assembly

Opening pressure

: 208.5 bar Tolerance bar : + 1.5 Test lines : 1 680 750 008

Outside diameter : 6.0

x inside diameter: 2.0

x length mm : 500

#### REMARKS

(A) INJECTION PUMP SETTING VALUES

Set equal delivery quant.

per values \_\_\_\_\_

# BEGINNING OF DELIVERY

Test pressure bar : 26.0 Tolerance bar : + 1.0

Prestroke mm : 4.70 Tolerance mm : ← 0.05

Check

tolerance mm :  $\leftarrow$  0.10

Rack travel in mm: 20.25 Tolerance mm :  $\leftarrow$  0.75

Firing order : 1-5- 3- 6- 2-

: 0-60-120-180-240 Phasing

: -300

Tolerance : +- 0.50

Check

tolerance \*NW : + 0.75

Start of delivery mark

\*NW after s.o.d. : -1.45 Tolerance :  $\leftarrow$  0.50

Check

tolerance \*NW : +- 0.75

Barrel no. : 1

# CRT ZERO POSITION

Rack travel in mm: 12.50 Tolerance mm : +- 0.05

		+ guide sleeve
SIC SETTING		+ travel mm : 6.00 + Tolerance mm : + 0.10
ted speed rpm	: 600	Rated speed rpm : 388 guide sleeve
l. quantity		travel mm : 4.42
3/1000 strokes	: 193.0	+ Tolerance mm : + 0.10
lerance		Rated speed rpm : 480
3/1000 strokes	: + 1.0	+ guide sleeve + travel mm : 6.00
eck tolerance		+ Tolerance mm : +- 0.10
3/1000s.	: +- 4.0	+
		Rated speed rpm : 1330
reed		guide sleeve
lerance		+ travel mm : 11.50 + Tolerance mm : + 0.50
3/1 <b>000</b> strokes	: 5.0	Toterance man . += 0.50
eck tolerance		GUIDE SLEEVE POSITION
3/1 <b>000</b> s.	: 9.0	İ
		- control lever
		position degree : 109
ed speed rpm	: 275	Rated speed rpm : 600
k travel in mm	: -6.80	Rack travel in mm: 20.00
erance mm	: <del></del> 0.10	+ Tolerance mm : ← 0.80
. quantity	. 71 0	†
3/1 <mark>000</mark> strokes Lerance	: 31.0	FULL LOAD DELIVERY AT FULL LOAD STO
8/1000 strokes	: +- 2.0	T FOLL EDAD DELIVERY AT FOLL EDAD STO
eck tolerance	210	Rated speed rpm : 600
3/1 <b>000</b> S.	: <b>←</b> 5.0	+ Aneroid pressure
reed		+ hPa : 1000
lerance	. 80	+ Del. quantity
3/1000 strokes ck tolerance	: 8.0	+ cm3/1000 strokes : 193.0 + Tolerance
3/1 <b>000</b> S.	: 12.0	- cm3/1000 strokes : + 1.0
		Check tolerance
		+ cm3/1000s. : ← 4.0
SETTING OF IN	JECTION PUMP	+ Spreed
TH GOVERNOR		+ Tolerance + cm3/1000 strokes : 5.0
		+ Cms/1000 strokes : 5.0 + Check tolerance
DE SLEEVE TRAVE	EL	- cm3/1000s. : 9.0
		+
ed speed rpm	: 1129	†
de sleeve	: 6.37	CONTROL LEVER
ivel mm erance mm	: 6.37 : + 0.15	T CONTROL LEVER
ECONIC (MII)	0.13	control lever
ed speed rpm	: 275	position degree : 274.0
	· · · · · · · · · · · · · · · · · · ·	tolerance degree : + 4.0
de steeve		
vel mm	: 1.52	+
de sleeve Ivel mm Lerance mm	: 1.52 : + 0.20	RATED SPEED
ivel mm		RATED SPEED rack travel mm : -1.00 Rated speed rpm : 1120

-8,50 rack travel mm Rated speed rpm 1235 Tolerance 1/min : + 15 rack travel man : -12.00 : + 0.50Tolerance mm 1350 Rated speed rpm

LOW IDLE

control lever position degree : 252.0 tolerance degree : + 4.0

Setting point w/out bumper spring

Rated speed rom 175 :

: > -5.00 CRT mm min.

Testing:

275 Rated speed rom -6.80rack travel mm : + 0.10Tolerance mm

: -10.50 rack travel mm Rated speed rpm : Tolerance 1/min

TORQUE CONTROL 600 Rated speed rpm

1050 Rated speed rpm Tolerance mm : +- 0.10

ANEROID/ALTITUDE COMPENSATOR TEST

SETTING

500 Rated speed rpm 1000 Pressure hPa

500 Rated speed rpm : Pressure hPa : rack travel mm -2.00: + - 0.20Tolerance mm

**MEASUREMENT** 

500 Rated speed rpm :

NO4

Pressure hPa 320 rack travel mm -0.85: + 0.15Tolerance mm

160 Pressure hPa -1.70 rack travel me : +- 0.05 Tolerance mm

Start interlock

Rated speed rpm 100 ; > Rated speed rpm : < 195

Check

speed 1/min : > 80 Check

215 speed 1/min : <

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure 1000 hPa

Rated speed rpm 1050 Del. quantity

cm3/1000 strokes : 196.0

Tolerance

cm3/1000 strokes : +- 3.0

Check tolerance

cm3/1000s. : +-6.0

Aneroid pressure hPa

500 Rated speed rpm Del. quantity

cm3/1000 strokes : 147.0

Tolerance

cm3/1000 strokes : +-1.0

Check tolerance

cm3/1000s. 4.0

STARTING FUEL DELIVERY

Rated speed rpm : 100

Del. quantity

cm3/1000 strokes : 150.0

Tolerance

cm3/1000 strokes : +- 15.0

Check tolerance

cm3/1000s. : +- 19.0

Rated speed rpm	:	275	
Rack travel in mm	:	-6.80	
Tolerance mm	: +-	0.10	
Del. quantity			
cm3/1000 strokes	:	31.0	
Tolerance			
cm3/1000 strokes	: +-	2.0	
Check tolerance			
cm3/1000s.	: +-	5.0	
Spreed			
Tolerance			
cm3/1000 strokes	:	8.0	
Check tolerance			
cm3/1000s.	:	12.0	

#### Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 05.02.98 Test oil : ISO 4113

Combination No. : 0 402 746 639

Injection pump

Pump designation : PES6P120A320RS7359 .

: -3

EP type number : 0 412 726 975

**Governor** 

Governer design. : RQ275/1050PA1217-2

Governer no. : 0 421 801 832

Cust. part No. : CCEP 5172 66-255

Customer-spec. information

Customer : RENAULT V.I.

Power KW : 210.0

# TEST BENCH REQUIREMENTS

Inlet line : 3.1

Test oil inlet

temp. °C : 40
Tolerance °C : + 2.0

Overflow valve : 2 417 413 078

Inlet press. bar : 2.5 Tolerance bar : + 0.1

Overflow quantity

min. l/h : 270
Tolerance l/h : + 20.0

Test nozzle holde

assembly : 1 688 901 105

Opening pressure

bar : 208.5 Tolerance bar : + 1.5 Test lines : 1 680 750 089

Outside diameter : 8.0

x inside diameter: 3.0 x length mm : 600

#### **REMARKS**

(A) INJECTION PUMP SETTING VALUES

Set equal delivery quant.

per values \_\_\_\_

# BEGINNING OF DELIVERY

Test pressure bar : 26.0 Tolerance bar : + 1.0

Prestroke mm : 4.80 Tolerance mm : + 0.05

Check

tolerance mm : + 0.10

Rack travel in mm: 20.25 Tolerance mm: + 0.75

Firing order : 1-5-3-6-2-

: 4

Phasing : 0-60-120-180-240

: -300

Tolerance :  $\leftarrow$  0.50

Check

tolerance \*NW : + 0.75

Start of delivery mark

\*NW after s.o.d. : -0.45

Tolerance : + 0.50

Check

tolerance \*NW : + 0.75

Barrel no. : 1

# CRT ZERO POSITION

Rack travel in mm : 13.40

N06

Tolerance mm : + 0.05	Rated speed rpm : 1050
BASIC SETTING	guide steeve travel mm : 6.00
Rated speed rpm : 600	Tolerance mma : + 0.10  Rated speed rpm : 400
Tolerance mm : + 0.05	Rated speed rpm : 400 guide sleeve travel mm : 4.82
Del. quantity cm3/1000 strokes : 285.0	Tolerance mm : + 0.10
Tolerance - 1.0	Rated speed rpm : 480 guide sleeve travel mm : 6.00
Check tolerance cm3/1000s. : + 4.0	Tolerance mm : + 0.10 Rated speed rpm : 1330
Spreed	guide sleeve travel mm : 11.50 Tolerance mm : + 0.50
Tolerance - cm3/1000 strokes : 5.0 -	
Check tolerance - 9.0	GUIDE SLEEVE POSITION
	control lever position degree : 109 Rated speed rpm : 600
Rated speed rpm : 275	Rack travel in mm : 20.00
Rack travel in mm: -7.50 Tolerance mm : + 0.10	Tolerance mm : + 0.80
Del. quantity - cm3/1000 strokes : 27.0 - Tolerance -	FULL LOAD DELIVERY AT FULL LOAD STOP
cm3/1000 strokes : + 2.0 - Check tolerance -	Rated speed rpm : 600 Aneroid pressure
cm3/1000s. : +- 5.0	1 1 - 1000
Spreed -	hPa : 1000  Del. quantity  285 0
Spreed - Tolerance - cm3/1000 strokes : 8.0 - Check tolerance -	
Tolerance - cm3/1000 strokes : 8.0 -	Del. quantity cm3/1000 strokes : 285.0 Tolerance cm3/1000 strokes : +- 1.0 Check tolerance cm3/1000s. : +- 4.0
Tolerance - cm3/1000 strokes : 8.0 - Check tolerance	Del. quantity cm3/1000 strokes : 285.0 Tolerance cm3/1000 strokes : +- 1.0 Check tolerance cm3/1000s. : +- 4.0 Spread Tolerance cm3/1000 strokes : 5.0
Tolerance cm3/1000 strokes : 8.0 Check tolerance cm3/1000s. : 12.0  (B) SETTING OF INJECTION PUMP WITH GOVERNOR	Del. quantity cm3/1000 strokes : 285.0 Tolerance cm3/1000 strokes : +- 1.0 Check tolerance cm3/1000s. : +- 4.0 Spreed Tolerance
Tolerance cm3/1000 strokes : 8.0 Check tolerance cm3/1000S. : 12.0  (B) SETTING OF INJECTION PUMP WITH GOVERNOR  GUIDE SLEEVE TRAVEL	Del. quantity cm3/1000 strokes : 285.0 Tolerance cm3/1000 strokes : +- 1.0 Check tolerance cm3/1000s. : +- 4.0 Spreed Tolerance cm3/1000 strokes : 5.0 Check tolerance
Tolerance cm3/1000 strokes : 8.0 Check tolerance cm3/1000S. : 12.0  (B) SETTING OF INJECTION PUMP WITH GOVERNOR  GUIDE SLEEVE TRAVEL  Rated speed rpm : 1129 guide sleeve	Del. quantity cm3/1000 strokes : 285.0 Tolerance cm3/1000 strokes : +- 1.0 Check tolerance cm3/1000s. : +- 4.0 Spreed Tolerance cm3/1000 strokes : 5.0 Check tolerance
Tolerance cm3/1000 strokes: 8.0 Check tolerance cm3/1000s.: 12.0  (B) SETTING OF INJECTION PUMP WITH GOVERNOR  GUIDE SLEEVE TRAVEL  Rated speed rpm: 1129	Del. quantity cm3/1000 strokes : 285.0 Tolerance cm3/1000 strokes : +- 1.0 Check tolerance cm3/1000s. : +- 4.0 Spresd Tolerance cm3/1000 strokes : 5.0 Check tolerance cm3/1000s. : 9.0
Tolerance cm3/1000 strokes : 8.0 Check tolerance cm3/1000s. : 12.0  (B) SETTING OF INJECTION PUMP WITH GOVERNOR  GUIDE SLEEVE TRAVEL  Rated speed rpm : 1129 guide sleeve travel mm : 6.36	Del. quantity cm3/1000 strokes : 285.0 Tolerance cm3/1000 strokes : +- 1.0 Check tolerance cm3/1000s. : +- 4.0 Spreed Tolerance cm3/1000 strokes : 5.0 Check tolerance cm3/1000s. : 9.0  CONTROL LEVER control lever

Rated speed rpm	: 1115
Tolerance 1/min	: + 15
rack travel mm	: −9.40
Rated speed rpm	: 1240
Tolerance 1/min	: ← 15
rack travel mm	: -12.90
Tolerance mm	: +- 0.50
Rated speed rpm	: 1350

control lever position degree : 256.0 tolerance degree : + 4.0

Setting point w/out bumper spring

Rated speed rpm : 175

CRT mm min. : > -5.30

# Testing:

Rated speed rpm 275 rack travel mm -7.50: + 0.10 Tolerance mm

: -11.40 rack travel mm Rated speed rpm : 375 Tolerance 1/min

TORQUE CONTROL 600 Rated speed rpm Tolerance mm : +- 0.05

: 1050 Rated speed rpm : + 0.10Tolerance mm

# ANEROID/ALTITUDE COMPENSATOR TEST

#### SETTING

Rated speed rpm : 500 Pressure hPa 1000

**500** Rated speed rpm Pressure hPa -2.85rack travel mm : **←** 0.20 Tolerance mm

# **MEASUREMENT**

500 Rated speed rpm : 520 Pressure hPa : -0.60rack travel mm : + 0.15

240 Pressure hPa : -2.20 : + 0.05 rack travel mm Tolerance mm

# Start interlock

Tolerance mm

Rated speed rpm : > 100 Rated speed rpm : < 195

Check speed 1/min ; > 80 Check speed 1/min 215 : <

# FUEL DELIVERY CHARACTERISTICS

Aneroid pressure 1000 Rated speed rpm 1050 Del. quantity cm3/1000 strokes : 293.C Tolerance cm3/1000 strokes : +-3.0 Check tolerance : +-

6.0

4.0

cm3/1000s.

cm3/1000s.

Aneroid pressure hPa Rated speed rpm : 500 Del. quantity cm3/1000 strokes : 150.0 Tolerance cm3/1000 strokes : +-1.0 Check tolerance

: +-

# STARTING FUEL DELIVERY

Rated speed rpm : 100 Del. quantity cm3/1000 strokes : 145.0 Tolerance cm3/1000 strokes : +- 15.0 Check tolerance cm3/1000s. : +- 19.0

Rated speed rpm	:	275
Rack travel in mma Tolerance mmm Del. quantity	: : +-	-7.50 0.10
cm3/1000 strokes	:	27.0
cm3/1000 strokes Check tolerance	: +-	2.0
cm3/1000s. Spreed	; +-	5.0
Tolerance cm3/1000 strokes Check tolerance	:	8.0
cm3/1000s.	:	12.0

#### Note remarks

Refer to Service Info for test and adjustment instructions. See microcard(s) W400/...

Edition : 10.02.98 : ISO 4113 Test oil

Combination No. : 0 402 746 655

Injection pump

Pump designation : PES6P120A320RS7343 .

EP type number : 0 412 726 915

Governor

Governer design. : RQV300...1000PA1160

: -1K

Governer no. : 0 421 815 559

Cust. part No. : 5168 66-250

Customer-spec. information

Customer : RENAULT V.I. : MIDR 062356 B41 Motor

Power KW : 288.0

# TEST BENCH REQUIREMENTS

Inlet line : 3.1

Test oil inlet

temp. °C : **←** 2.0 Tolerance °C

Overflow valve : 2 417 413 071

Inlet press. bar : 2.5

Test nozzle holde

: 1 688 901 105 assembly

Opening pressure

208.5 Tolerance bar : + 1.5

Test Lines : 1 680 750 089

Outside diameter : 8.0

x inside diameter: 3.0 x length mm :

# REMARKS

(A) INJECTION PUMP SETTING VALUES

Set equal delivery quant.

per values \_\_\_\_\_

# BEGINNING OF DELIVERY

rest pressure bar : 26.0 Tolerance bar : + 1.0

Prestroke mm : 4.50 Tolerance mm : + 0.05

Check

tolerance mm : +- 0.10

Rack travel in mm: 11.60 Tolerance mm : + 1.50

Firing order : 1-5-3-6-2-

Phasing : 0-60-120-180-240

: -300

Tolerance : +- 0.50

Check

: + 0.75 tolerance \*NW

Start of delivery mark

\*NW after s.o.d. : -0.40 : + 0.50 Tolerance

Check

tolerance \*NW : + 0.75

Barrel no. : 1

Beginning of delivery differende

betw. rack trav.

21.00 mm

and maximum rack

11.00 travel

Difference \* CS : 2.25

CRT ZERO POSITION

	† Tolerance mm : + 0.20
Rack travel in mm : 13.00 Tolerance mm : +- 0.05	Rated speed rpm : 827 guide sleeve
	† travel mm : 5.96 † Tolerance mm : + 0.25
BASIC SETTING	+ Toterarice inii : + U.25
	Rated speed rpm : 550
Rated speed rpm : 1000	f guide sleeve travel mm : 3.66
Del. quantity	+ Tolerance mm : + 0.25
cm3/1000 strokes : 356.0	1 2 4 4 5
Tolerance	+ Rated speed rpm : 1440 + guide sleeve
cm3/1000 strokes : + 1.0	+ travel mm : #3.50
	Tolerance mm : + 0.50
Check tolerance cm3/1000s. : +- 4.0	Ţ <u> </u>
	GUIDE SLEEVE POSITION
Spreed	†
Tolerance	t control lever
cm3/1000 strokes : 5.0	position degree : - 1
	Rated speed rpm : 1275
Check tolerance cm3/1000s. : 9.0	† Rack travel in mm : 12.00
	Tolerance mm : + 1.30
	†
Rated speed rpm : 300	FULL LOAD DELIVERY AT FULL LOAD STOP
,	+
Rack travel in mm : -7.90 Tolerance mm : +- 0.10	Rated speed rpm : 1000
Tolerance mm : + 0.10  Del. quantity	+ Aneroid pressure + hPa : 1200
cm3/1000 strokes : 36.0	+ Del. quantity
Tolerance	+ cm3/1000 strokes : 356.0
cm3/1000 strokes : +- 1.5 Check tolerance	+ Tolerance + cm3/1000 strokes : +- 1.0
cm3/1000s. : +- 5.0	+ Check tolerance
Spreed	+  cm3/1000s. : + 4.0
Tolerance cm3/1000 strokes : 8.0	+ Spreed + Tolerance
Check tolerance	cm3/1000 strokes : 5.0
cm3/1000s. : 12.0	Check tolerance
	t cm3/1900s. : 9.0
(B) SETTING OF INJECTION PUMP	Ţ
WITH GOVERNOR	
	CONTROL LEVER
GUIDE SLEEVE TRAVEL	control lever
	position degree : 296.0
Rated speed rpm : 1113	tolerance degree : +- 4.0
guide sleeve travel mm : 8.82	RATED SPEED
Tolerance mm : + 0.15	rack travel mm : -1.00
700	Rated speed rpm : 1100
Rated speed rpm : 300 guide sleeve	+ Tolerance 1/min : +- 5
travel mm : 1.29	Track travel mm : -9.00
	•

Rated speed rpm : 1225 Tolerance 1/min : + 15 rack travel mm : -12.50Tolerance mm : +-0.50Rated speed rpm : 1350 LOW IDLE control lever position degree : 252.0 tolerance degree : +- 4.0 Setting point w/out bumper spring Rated speed rpm : 200 CRT mm main. : > -6.90Testing: 300 Rated speed rpm : -7.90 rack travel mm : : + 0.10 Tolerance mm Rated speed rpm : 390 TORQUE CONTROL Rated speed rpm : 1000 Rated speed rpm : 600 rack travel mm : -0.65: + 0.15 Tolerance mm Rated speed rpm : 800 0.10 rack travel mm : : **←** 0.15 Tolerance mm Rated speed rpm : 350 rack travel mm : -1.75 : +- 0.30 Tolerance mm ANFROID/ALTITUDE COMPENSATOR TEST SETTING Rated speed rpm : 1000 : 1200 Pressure hPa

MEASUREMENT Rated speed rpm : 1000 : 320 · -2.90 • 15 Pressure hPa rack travel mm : : + 0.15 Tolerance mm Pressure hPa : 520 rack travel mm : -1.80 Tolerance m :  $\leftarrow$  0.05 Start interlock Rated speed rpm : > Rated speed rpm :> 100 225 Check speed 1/min : > 80 Check speed 1/min : < 245 FUEL DELIVERY CHARACTERISTICS Aneroid pressure 1200 hPa 600 Rated speed rpm : Del. quantity cm3/1000 strokes : 381.0 Tolerance cm3/1000 strokes : +- 3.0 Check tolerance cm3/1000s. : +- 6.0 0.10 rack travel mm : Tolerance mm :  $\leftarrow$  0.15 Aneroid pressure hPa Rated speed rpm : 500 Del. quantity cm3/1000 strokes : 245.0 Tolerance cm3/1000 strokes : +-Check tolerance cm3/1000s. : +- 4.0 STARTING FUEL DELIVERY Rated speed rpm : 100 rack travel mm : 20.25

Tolerance  $m_1$ :  $\leftarrow 0.30$ 

Rated speed rpm : 500

rack travel mm : -4.00

Pressure hPa

Tolerance mm	:	+	0.75
Del. quantity cm3/1000 strokes	:		185.0
Tolerance cm3/1000 strokes	:	+	15.0
Check tolerance cm3/1000s.	:	+-	19.0

Rated speed rpm	:	300	
Rack travel in mm Tolerance mm	: : +	-7.90 0.10	
Del. quantity cm3/1000 strokes Tolerance	:	36.0	
cm3/1000 strokes Check tolerance	: +-	1.5	
cm3/1000s. Spreed	: +	5.0	
Tolerance cm3/1000 strokes	:	8.0	
Check tolerance cm3/1000s.	:	12.0	

#### Note remarks

Refer to Service Info for test and adjustment instructions. See microcard(s) W400/...

: 06.02.98 Edition : ISO 4113 Test oil

Combination No. : 0 402 846 076

Injection pump

Pump designation : PE6P12OA32ORS8043 EP type number : 0 412 826 035

Governor

Governer design. : RQV300...1100PA1248

: 0 421 814 165 Governer no.

Cust. part No. : 11031330

: -P03 v.12.97

Customer-spec. information

Customer : VCE

: TD 103 KBE Motor Power KW : 216.0

# TEST BENCH REQUIREMENTS

Inlet line : 3.1

Test oil inlet

temp. °C Tolerance \*C

Overflow valve : 2 417 413 078

Inlet press. bar : 2.5 Tolerance bar : ← 0.1

Overflow quantity

min. L/h : 150 Tolerance L/h : +- 20.0

Test nozzle holde

: 1 688 901 103 assembly

Opening pressure

208.5 Tolerance bar : + 1.5 Test Lines : 1 680 750 008

Outside diameter : 6.0

x inside diameter: 2.0 x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES

Set equal delivery quant.

per values \_\_\_\_\_

# BEGINNING OF DELIVERY

Test pressure bar : 26.0 Tolerance bar : + 1.0

Prestroke mm 4.25 : +- 0.05 Tolerance mm Check : +- 0.10 tolerance mm

Rack travel in mm : 11.00 Tolerance mm : + 1.00

: 1-5-3-6-2-Firing order

Phasing : 0-60-120-180-240 : -300

: +- 0.50 Tolerance

Check

tolerance \*NW : + 0.75

Start of delivery mark

Tolerance :  $\leftarrow$  0.50

Check

: +- 0.75 tolerance \*NW

Barrel no. : 1

	-	Tolerance mm : + 0.20
BASIC SETTING	-	Rated speed rpm : 1080 guide sleeve
Rated speed rpm	: 700 -	travel mm : 6.80 Tolerance mm : + 0.25
Rack travel in mm Tolerance mm		Rated speed rpm : 520 guide sleeve
Del. quantity cm3/1000 strokes	: 270.0	travel mm : 4.67 Tolerance mm : +- 0.25
Tolerance	: + 1.0	Rated speed rpm : 1370 guide sleeve travel mm : 11.50
Check tolerance cm3/1000S.	: +- 4.0	Tolerance mm : ÷- 0.50
Spreed		GUIDE SLEEVE POSITION
Tolerance cm3/1000 strokes	: 8.0 - 	control lever position degree : - 1 Rated speed rpm : 1240
Check tolerance cm3/1000s.	: 11.0	Rack travel in mm : 11.30 Tolerance mm : + 1.50
Rated speed rpm :	: 330	FULL LOAD DELIVERY AT FULL LOAD STOP
Rack travel in mm : Tolerance mm : Del. quantity		Rated speed rpm : 700 Aneroid pressure hPa : 1500
cm3/1000 strokes : Tolerance cm3/1000 strokes :	+	- Del. quantity - cm3/1000 strokes : 270.0 - Tolerance
Check tolerance cm3/1000s.	· · · · · · · · · · · · · · · · · · ·	- cm3/1000 strokes : +- 1.0 - Check tolerance - cm3/1000s. : +- 4.0
Spreed Tolerance cm3/1000 strokes :	: 5.0	- Spreed - Toleranse
Check tolerance cm3/1000S.	: 8.0	- cm3/1000 strokes : 8.0 - Check tolerance - cm3/1000S. : 11.0
(B) SETTING OF INJE	ECTION PUMP	
WITH GOVERNOR		CONTROL LEVER
GUIDE SLEEVE TRAVEL	+	control lever position degree : 60.0
Rated speed rpm : guide sleeve travel mm :	: 1140 : 7.71	tolerance degree : +- 4.0  control lever
Tolerance mm :	+ 0.15	position degree : 115.0 tolerance degree : +- 4.0
guide sleeve	: 330 : 2.10	- - RATED SPEED - rack travel mm : 11.40
	<b>'</b>	

Rated speed rpm : 1130
Tolerance 1/min : + 5

rack travel mm : 4.00
Rated speed rpm : 1220
Tolerance 1/min : + 15

rack travel mm : 0.50
Tolerance mm : + 0.50
Rated speed rpm : 1275

LOW IDLE

control lever

position degree : 65.0 tolerance degree : + 4.0 control lever

position degree : 14.0 tolerance degree : + 4.0

Setting point w/out bumper spring

Rated speed rpm : 230

CRT mm min. : > 6.00

Testing:

Rated speed rpm : 330 rack travel mm : 4.00 Tolerance mm :  $\div$  0.10

Rated speed rpm : 400

TORQUE CONTROL
Rated speed rpm : 700
rack travel mm : 12.40
Tolerance mm : + 0.05

ANEROID/ALTITUDE COMPENSATOR TEST

**SETTING** 

Rated speed rpm : 500
Pressure hPa : 1500
rack travel mm : 12.40
Tolerance mm : + 0.05

Rated speed rpm : 500
Pressure hPa : rack travel mm : 9.70

Tolerance mm : + 0.20

MEASUREMENT

Rated speed rpm : 500

Pressure hPa : 550 rack travel mm : 2.20 Tolerance mm : + 0.20

Pressure hPa : 230 rack travel mm : 0.25 Tolerance mm : + 0.05

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : Rated speed rpm : 700
Del. quantity

cm3/1000 strokes : 202.0

Tolerance

cm3/1000 strokes :  $\leftarrow$  1.0

Check tolerance

cm3/1000s. : +- 4.0

LOW IDLE

Rated speed rpm : 330

Rack travel in mm : 4.00
Tolerance mm : + 0.10
Del. quantity
cm3/1000 strokes : 29.0

Tolerance cm3/1000 strokes : + 2.5

Check tolerance cm3/1000§. : +- 5.0 Spreed

Tolerance

cm3/1000 strokes : 5.0

Check tolerance

cm3/1000s. : 8.0

End of test specification sheet

N16

#### Note remarks

Refer to Service Info for test and adjustment instructions. See microcard(s) W400/...

Edition : 08.05.96 Test oil : ISO 4113

Combination No. : 0 403 446 302

Injection pump

Pump designation : PES6MW100/720RS1131.

EP type number : 0 413 406 123

Governor

Governer design. : RQV300...1300MW50

: -24

Governer no. : 0 420 083 270

Cust. part No. : 0220745202

Customer—spec. information Customer : MB-NFZ

Motor : 0M 366 A Power KW : 121.0

# TEST BENCH REQUIREMENTS

Inlet line : 3.1

Test oil inlet

temp. °C : 40
Tolerance °C : + 2.0

Overflow valve : 1 419 992 198

Inlet press. bar : 1.5

Test nozzle holde

assembly : 1 688 901 101

Opening pressure

bar : 208.5 Tolerance bar : + 1.5

Test lines : 1 680 715 089

Outside diameter : 8.0

x inside diameter: 3.0 x length mm : 600

#### REMARKS

(A) INJECTION PUMP SETTING VALUES

Set equal delivery quant.

per values \_\_\_\_

# BEGINNING OF DELIVERY

Test pressure bar : 31.0 Tolerance bar : + 1.0

Prestroke mm : 3.75
Tolerance mm : + 0.05

Check

tolerance mm : + 0.10

Rack travel in mm : 10.50 Tolerance mm : + 1.50

Firing order : 1-5-3-6-2-

: 4

Phasing : 0-60-120-180-240

: -300

Tolerance : + 0.50

Check

tolerance \*NW : + 0.75

#### BASIC SETTING

Rated speed rpm : 1300

Rack travel in mm: 10.95

Tolerance mm : +- 0.05

Del. quantity

cm3/1000 strokes : 89.0

Tolerance

cm3/1000 strokes : +- 1.0

Check tolerance

cm3/1000s. : +- 3.0

Spreed

cm3/1000 strokes	: 3.5	control lever position degree : 113
Check tolerance cm3/1000s.	: 6.0	Rated speed rpm : 1370
		+
Rated speed rpm	: 300	+ FULL LOAD DELIVERY AT FULL LOAD STOP
Rack travel in mm	: 6.40	+
Tolerance mm	: <b>←</b> 0.10	Rated speed rpm : 1300
Del. quantity		Aneroid pressure
cm3/1000 strokes	: 12.0	+ hPa : 700
Tolerance		+ Del. quantity
m3/1000 strokes	: + 2.0	- cm3/1000 strokes : 89.0
Check tolerance	/ 5	+ Tolerance
cm3/1 <b>00</b> 05.	: <del>←</del> 4.5	cm3/1000 strokes : +- 1.0 Check tolerance
Spreed Folerance		+ cneck toterance + cm3/1000s. : + 3.0
m3/1000 strokes	: 3.5	Spreed
Check tolerance	• •••	+ Tolerance
m3/1000s.	: 5.5	+ cm3/1000 strokes : 3.5
·		+ Check tolerance
(B) SETTING OF INJ		+ cm3/1000s. : 6.0
GUIDE SLEEVE TRAVE	L	CONTROL LEVER  control lever
Rated speed rpm	: 1354	position degree : 112.0
uide sleeve		tolerance degree : + 4.0
		· · · · · · · · · · · · · · · · · · ·
ravel mm	: 8.64	+
ravel mm	8.64 + 0.15	RATED SPEED
ravel mm folerance mm	: + 0.15	RATED SPEED - rack travel mm : 9.95
ravel mm Tolerance mm Rated speed rpm		RATED SPEED  rack travel mm : 9.95  Rated speed rpm : 1345
ravel mm Tolerance mm Rated speed rom guide sleeve	: ← 0.15 : 300	RATED SPEED 9.95
ravel mm Tolerance mm Rated speed rom guide sleeve ravel mm	: ← 0.15 : 300 : 1.37	RATED SPEED rack travel mm : 9.95 Rated speed rpm : 1345 Tolerance 1/min : +- 5
ravel mm folerance mm tated speed rpm guide sleeve ravel mm	: ← 0.15 : 300	RATED SPEED  rack travel mm : 9.95  Rated speed rpm : 1345  Tolerance 1/min : + 5  rack travel mm : 4.00
ravel mm  Tolerance mm  Pated speed rpm  puide sleeve  ravel mm  Tolerance mm	: ← 0.15 : 300 : 1.37	RATED SPEED rack travel mm : 9.95 Rated speed rpm : 1345 Tolerance 1/min : + 5 rack travel mm : 4.00
ravel mm  colerance mm  Rated speed rpm  puide sleeve  ravel mm  colerance mm  Rated speed rpm  puide sleeve	: ← 0.15 : 300 : 1.37 : ← 0.20 : 885	RATED SPEED rack travel mm : 9.95 Rated speed rpm : 1345 Tolerance 1/min : + 5  rack travel mm : 4.00 Rated speed rpm : 1440 Tolerance 1/min : + 15
ravel mm  olerance mm  ated speed rpm  uide sleeve  ravel mm  olerance mm  ated speed rpm  uide sleeve  ravel mm	: ← 0.15 : 300 : 1.37 : ← 0.20 : 885 : 5.01	RATED SPEED rack travel mm : 9.95 Rated speed rpm : 1345 Tolerance 1/min : + 5  rack travel mm : 4.00 Rated speed rpm : 1440 Tolerance 1/min : + 15  rack travel mm : 0.50
ravel mm  olerance mm  ated speed rpm  uide sleeve  ravel mm  olerance mm  ated speed rpm  uide sleeve  ravel mm	: ← 0.15 : 300 : 1.37 : ← 0.20 : 885	RATED SPEED rack travel mm : 9.95 Rated speed rpm : 1345 Tolerance 1/min : + 5  rack travel mm : 4.00 Rated speed rpm : 1440 Tolerance 1/min : + 15  rack travel mm : 0.50 Tolerance mm : + 0.50
ravel mm  Tolerance mm  Rated speed rpm  Ruide sleeve  Rated speed rpm  Rated speed rpm  Ruide sleeve  Ravel mm  Tolerance mm	: ← 0.15 : 300 : 1.37 : ← 0.20 : 885 : 5.01 : ← 0.25	RATED SPEED rack travel mm : 9.95 Rated speed rpm : 1345 Tolerance 1/min : + 5  rack travel mm : 4.00 Rated speed rpm : 1440 Tolerance 1/min : + 15  rack travel mm : 0.50
ravel mm  olerance mm  rated speed rpm  ruide sleeve  ravel mm  olerance mm  rated speed rpm  uide sleeve  ravel mm  olerance mm	: ← 0.15 : 300 : 1.37 : ← 0.20 : 885 : 5.01	RATED SPEED rack travel mm : 9.95 Rated speed rpm : 1345 Tolerance 1/min : + 5  rack travel mm : 4.00 Rated speed rpm : 1440 Tolerance 1/min : + 15  rack travel mm : 0.50 Tolerance mm : + 0.50
ravel mm  olerance mm  ated speed rpm  uide sleeve ravel mm  ated speed rpm  uide sleeve ravel mm  olerance mm	: ← 0.15 : 300 : 1.37 : ← 0.20 : 885 : 5.01 : ← 0.25 : 490	RATED SPEED rack travel mm : 9.95 Rated speed rpm : 1345 Tolerance 1/min : + 5  rack travel mm : 4.00 Rated speed rpm : 1440 Tolerance 1/min : + 15  rack travel mm : 0.50 Tolerance mm : + 0.50
ravel mm olerance mm ated speed rpm uide sleeve ravel mm ated speed rpm uide sleeve ravel mm olerance mm ated speed rpm uide sleeve ravel mm	: ← 0.15 : 300 : 1.37 : ← 0.20 : 885 : 5.01 : ← 0.25 : 490 : 2.86	RATED SPEED rack travel mm : 9.95 Rated speed rpm : 1345 Tolerance 1/min : + 5  rack travel mm : 4.00 Rated speed rpm : 1440 Tolerance 1/min : + 15  rack travel mm : 0.50 Tolerance mm : + 0.50
ravel mm  olerance mm  ated speed rpm  uide sleeve ravel mm  ated speed rpm  uide sleeve ravel mm  olerance mm  ated speed rpm  uide sleeve ravel mm  oterance mm	: ← 0.15 : 300 : 1.37 : ← 0.20 : 885 : 5.01 : ← 0.25 : 490	RATED SPEED rack travel mm : 9.95 Rated speed rpm : 1345 Tolerance 1/min : + 5  rack travel mm : 4.00 Rated speed rpm : 1440 Tolerance 1/min : + 15  rack travel mm : 0.50 Tolerance mm : + 0.50 Rated speed rpm : 1500
ravel mm  olerance mm  rated speed rpm  puide sleeve  ravel mm  olerance mm  rated speed rpm  puide sleeve  ravel mm  olerance mm  rated speed rpm  puide sleeve  ravel mm  olerance mm	: ← 0.15 : 300 : 1.37 : ← 0.20 : 885 : 5.01 : ← 0.25 : 490 : 2.86	RATED SPEED rack travel mm : 9.95 Rated speed rpm : 1345 Tolerance 1/min : + 5  rack travel mm : 4.00 Rated speed rpm : 1440 Tolerance 1/min : + 15  rack travel mm : 0.50 Tolerance mm : + 0.50
travel mm  Tolerance mm  Rated speed rpm guide sleeve travel mm  Rated speed rpm guide sleeve travel mm  Rated speed rpm guide sleeve travel mm  Rated speed rpm guide sleeve travel mm  Rated speed rpm guide sleeve travel mm  Rated speed rpm guide sleeve	: ← 0.15 : 300 : 1.37 : ← 0.20 : 885 : ← 5.01 : ← 0.25 : 490 : 2.86 : ← 0.25 : 1610	RATED SPEED rack travel mm : 9.95 Rated speed rpm : 1345 Tolerance 1/min : + 5  rack travel mm : 4.00 Rated speed rpm : 1440 Tolerance 1/min : + 15  rack travel mm : 0.50 Tolerance mm : + 0.50 Rated speed rpm : 1500
ravel mm  Tolerance mm  Rated speed rpm  Fuide sleeve  Fravel mm  Tolerance mm  Rated speed rpm  Fuide sleeve  Fravel mm  Tolerance mm  Rated speed rpm  Fuide sleeve  Fravel mm  Folerance mm	: ← 0.15 : 300 : 1.37 : ← 0.20 : 885 : ← 5.01 : ← 0.25 : 490 : 2.86 : ← 0.25 : 1610 : 11.50	RATED SPEED rack travel mm : 9.95 Rated speed rpm : 1345 Tolerance 1/min : + 5  rack travel mm : 4.00 Rated speed rpm : 1440 Tolerance 1/min : + 15  rack travel mm : 0.50 Tolerance mm : + 0.50 Rated speed rpm : 1500  LOW IDLE  control lever
ravel mm folerance mm rated speed rpm ruide sleeve ravel mm rolerance mm rated speed rpm ruide sleeve ravel mm rolerance mm rated speed rpm ruide sleeve ravel mm rolerance mm	: ← 0.15 : 300 : 1.37 : ← 0.20 : 885 : ← 5.01 : ← 0.25 : 490 : 2.86 : ← 0.25 : 1610	RATED SPEED rack travel mm : 9.95 Rated speed rpm : 1345 Tolerance 1/min : + 5  rack travel mm : 4.00 Rated speed rpm : 1440 Tolerance 1/min : + 15  rack travel mm : 0.50 Tolerance mm : + 0.50 Rated speed rpm : 1500
ravel mm olerance mm ated speed rpm uide sleeve ravel mm ated speed rpm uide sleeve ravel mm olerance mm ated speed rpm uide sleeve ravel mm oterance mm ated speed rpm uide sleeve ravel mm olerance mm	: ← 0.15 : 300 : 1.37 : ← 0.20 : 885 : 5.01 : ← 0.25 : 490 : 2.86 : ← 0.25 : 1610 : 11.50 : ← 0.50	RATED SPEED rack travel mm : 9.95 Rated speed rpm : 1345 Tolerance 1/min : + 5  rack travel mm : 4.00 Rated speed rpm : 1440 Tolerance 1/min : + 15  rack travel mm : 0.50 Tolerance mm : + 0.50 Rated speed rpm : 1500  LOW IDLE  control lever position degree : 79.0
ravel mm olerance mm uide sleeve ravel mm olerance mm ated speed rpm uide sleeve ravel mm olerance mm ated speed rpm uide sleeve ravel mm olerance mm ated speed rpm uide sleeve ravel mm olerance mm	: ← 0.15 : 300 : 1.37 : ← 0.20 : 885 : 5.01 : ← 0.25 : 490 : 2.86 : ← 0.25 : 1610 : 11.50 : ← 0.50	RATED SPEED rack travel mm : 9.95 Rated speed rpm : 1345 Tolerance 1/min : + 5  rack travel mm : 4.00 Rated speed rpm : 1440 Tolerance 1/min : + 15  rack travel mm : 0.50 Tolerance mm : + 0.50 Rated speed rpm : 1500  LOW IDLE  control lever position degree : 79.0 tolerance degree : + 4.0

CRT mm min.	: > 8.00	†	Check speed 1/min	: < 240
Testing: Rated speed rpm rack travel mm Tolerance mm	: 6.40	† † †	FUEL DELIVERY CHA	: 700
TORQUE CONTROL Rated speed rpm rack travel mm Tolerance mm	: 10.95	+	Rated speed rpm Del. quantity cm3/1000 strokes Tolerance cm3/1000 strokes	: 85,5
Rated speed rpm rack travel mm Tolerance mm	: 750 : 11.55 : + 0.05		Check tolerance cm3/1000S. Spreed Tolerance cm3/1000 strokes	
Rated speed rpm rack travel mm Tolerance mm	: 1100 : 11.20 : ← 0.10	+	Check tolerance cm3/1000s.	: 7.0
ANEROID/ALTITUDE COMPENSATOR TEST		+	Tolerance mm	
SETTING		1	Aneroid pressure hPa Rated speed rpm	: -
Rated speed rpm Pressure hPa rack travel mm	: 700 : 11.55	+	Del. quantity cm3/1000 strokes Tolerance	: 48.0
Tolerance mm  Rated speed rpm  Pressure hPa	: 500 : -	‡	cm3/1000 strokes Check tolerance cm3/1000s.	: ← 1.0 : ← 3.0
Tolerance mm MEASUREMENT	: + 0.10	Ī	STARTING FUEL DEL	 IVERY
Rated speed rpm	: 500	†	Rated speed rpm Del. quantity	: 100
Pressure hPa rack travel mm Tolerance mm	: 300 : 1.35 : + 0.15	+	cm3/1000 strokes Tolerance cm3/1000 strokes	
Pressure hPa rack travel mm Tolerance mm	: 200 : 0.55 : + 0.05	†	Check tolerance cm3/1000S.	: +- 8.0
Start interlock			LOW IDLE	
Rated speed rpm Rated speed rpm		<u> </u>	Rated speed rpm	
Check speed 1/min	: > 80	† † †	Rack travel in mm Tolerance mm Del. quantity cm3/1000 strokes	: +- 0.10

Tolerance
cm3/1000 strokes : ← 2.0
Check tolerance
cm3/1000s. : ← 4.5
Spreed
Tolerance
cm3/1000 strokes : 3.5
Check tolerance
cm3/1000s. : 5.5

#### Note remarks

Refer to Service Info for test and adjustment instructions. See microcard(s) W400/...

Edition : 29.01.97 Test oil : ISO 4113

Combination No. : 9 400 087 498

Injection pump

Pump designation : PES6P120A120RS3344 .

EP type number : 9 400 087 090

Governor

Governer design. : RQV350...1100PA1216

Governer no. : 9 420 080 380

Cust. part No. : 3355978

Customer—spec. information Customer : CUMMINS

Motor : 6 CTAA - 250

Power kW : 184.0

## TEST BENCH REQUIREMENTS

Inlet line : 3.2

Test oil inlet

temp. °C : 40 Tolerance °C : + 2.0

Overflow valve : 2 417 413 076

Inlet press. bar : 3.0

Test nozzle holde

assembly : 1 688 901 019

Opening pressure

bar : 208.5 Tolerance bar : + 1.5

Test lines : 1 680 750 008

Outside diameter : 6.0

x inside diameter: 2.0 x length mm : 600

#### REMARKS

(A) INJECTION PUMP SETTING VALUES Set equal delivery quant.

per values \_\_\_\_\_

# BEGINNING OF DELIVERY

Test pressure bar : 26.0 Tolerance bar : + 1.0

Prestroke mm : 4.15
Tolerance mm : + 0.05
Check
tolerance mm : + 0.10

Rack travel in mm : 15.50 Tolerance mm : +- 1.50

Firing order : 1-5-3-6-2-

: 4

Phasing : 0-60-120-180-240

: -300 Tolerance : +- 0.50

Check

tolerance  $^{\circ}NW$  :  $\leftarrow$  0.75

Start of delivery blocking

\*NW after s.o.d. : 7.50 Tolerance : + 0.10

Check

tolerance \*NW : + 0.23

Barrel no. : 1

# BASIC SETTING

Rated speed rpm : 1100

Rack travel in mm : 14.55

Tolerance mm : +- 0.05

Del. quantity cm3/1000 strokes	: 184.5	+ Tolerance man : + 0.25
		+ Rated speed rpm : 1400
Tolerance		+ guide sleeve
cm3/1000 strokes	: <del>+</del> 1.0	+ travel mm : 10.55
		Tolerance mm : +- 0.25
Check tolerance	: + 4.0	†
cm3/1000s.	: - 4.0	GUIDE SLEEVE POSITION
Spreed		I GOIDE SEEENE POSITION
opi cca		1
Tolerance		+ control lever
cm3/1000 strokes	: 5.0	position degree : - 1
		+ Rated speed rpm : 1150
Check tolerance	2.0	1/ 50
cm3/1000s.	: 9.0	+ Rack travel in mm : 16.50 + Tolerance mm : + 1.30
		T roterance min : - 1.50
Rated speed rpm	: 325	FULL LOAD DELIVERY AT FULL LOAD STOP
		†
Rack travel in mn		+ Rated speed rpm : 1100
Tolerance mm	: + 0.10	+ Aneroid pressure + hPa : 1000
Del. quantity cm3/1000 strokes	: 44.0	+ hPa : 1000 + Del. quantity
Tolerance	. 44.0	cm3/1000 strokes : 184.5
cm3/1000 strokes	: <b>←</b> 3.0	+ Tolerance
Check tolerance		+ cm3/1000 strokes : +- 1.0
cm3/1000s.	: <b>←</b> 6.0	+ Check tolerance
Spr <del>ee</del> d		+ cm3/1000s. : $+$ 4.0
Tolerance	0.0	+ Spreed
cm3/1000 strokes	: 8.0	+ Tolerance
Check tolerance cm3/1000s.	: 12.0	+ cm3/1000 strokes : 5.0 + Check tolerance
Cm5/10005.	: 12.0	+ cm3/1000s. : 9.0
		+
(B) SETTING OF IN	NJECTION PUMP	+
WITH GOVERNOR		
		+ CONTROL LEVER
GUIDE SLEEVE TRAV	/EI	t control lever
GOTDE SPEENE INVA	/CL	position degree : 63.0
Rated speed rpm	: 650	tolerance degree : + 4.0
guide sleeve		+
travel mm	: 5.55	+ control lever
Tolerance mm	: <del>+</del> 0.25	position degree : 117.0
Datad anasil and	. 1150	tolerance degree : +- 4.0
Rated speed rpm	: 1150	RATED SPEED
guide sleeve travel mm	: 8.40	rack travel mm : 13.50
Tolerance mm	: +- 0.10	+ Rated speed rpm : 1155
. 0 (0)		+ Tolerance 1/min : + 5
Rated speed rpm	: 350	+
guide sleeve	4 55	+ rack travel mm : 4.00
travel mm	: 1.55	+ Rated speed rpm : 1350
Tolerance mm	: <b></b> 0.25	† Tolerance 1/min : +- 15
Rated speed rpm	: 500	rack travel mm : 0.50
guide sleeve		+ Tolerance mm : + 0.50
travel mm	: 4.05	Rated speed rpm : 1500

LOW IDLE	
control lever position degree tolerance degree	: 69.0 : ← 4.0
control lever position degree tolerance degree	: 14.0 : + 4.0
Setting point w/o	ut bumper spring .
Rated speed rpm	: 100
CRT mm min.	: > 9.50
Testing:	
Rated speed rpm rack travel mm Tolerance mm	: 325 : 6.40 : ← 0.10
Rated speed rpm	: 375
TORQUE CONTROL Rated speed rpm rack travel mm Tolerance mm	: 1100 : 14.55 : ← 0.05
Rated speed rpm rack travel mm Tolerance mm	: 700 : 14.55 : +- 0.05
ANEROID/ALTITUDE COMPENSATOR TEST	
SETTING	
Rated speed rpm Pressure hPa rack travel mm Tolerance mm	: 500 : 1000 : 14.55 : + 0.05
Rated speed rpm Pressure hPa	: 500 : -
MEASUREMENT	
Rated speed rpm	: 500
Pressure hPa rack travel mm	: 680 : 0.85

Tolerance mm	: +-	0.15	
Pressure ĥPa rack travel mm Tolerance mm	: +-	530 0.30 0.10	
Start interlock			
Rated speed rpm	: >	100	
Rated speed rpm Rated speed rpm	: <	255	
Check speed 1/mir	: >	80	
Check	•	00	
speed 1/min	: <	275	
FUEL DELIVERY CHA	RACTER	STICS	
Aneroid pressure	. 40	200	
hPa Rated speed rpm		)00 '00	
Del. quantity			
cm3/1000 strokes	: 1	184.0	
Tolerance cm3/1000 strokes	: +-	2.0	
Check tolerance	. +-	۷.0	
cm3/1000s.	: +	5.0	
Aneroid pressure			
hPa	:	-	
Rated speed rpm Del. quantity	: :	500	
cm3/1000 strokes	: 1	44.0	
Tolerance		4.5	
cm3/1000 strokes Check tolerance	: +-	1.0	
cm3/1000s.	: +-	4.0	
cm3/1000s.	: +- IVERY	4.0	
cm3/1000s.  STARTING FUEL DEL	: 1	00	
cm3/1000s.  STARTING FUEL DEL: Rated speed rpm rack travel mm	: 1	00	
cm3/1000s.  STARTING FUEL DEL  Rated speed rpm rack travel mm Tolerance mm	: 1	00	
cm3/1000s.	: 1 : +	00	
cm3/1000s.  STARTING FUEL DEL  Rated speed rpm rack travel mm Tolerance mm Del. quantity cm3/1000 strokes Tolerance	: 1 : 2 : +	00 0.00 1.00 90.0	
cm3/1000s.  STARTING FUEL DEL  Rated speed rpm rack travel mm Tolerance mm Del. quantity cm3/1000 strokes Tolerance cm3/1000 strokes	: 1 : +	00 0.00 1.00	
cm3/1000s.  STARTING FUEL DEL  Rated speed rpm rack travel mm Tolerance mm Del. quantity cm3/1000 strokes Tolerance cm3/1000 strokes Check tolerance	: 1 : 2 : +	00 0.00 1.00 90.0	
cm3/1000s.  STARTING FUEL DEL  Rated speed rpm rack travel mm Tolerance mm Del. quantity cm3/1000 strokes Tolerance cm3/1000 strokes	: 1 : 2 : +	00 0.00 1.00 90.0	

N23

Rated speed rpm	:		325
Rack travel in mm Tolerance mm Del. quantity	:	+	6.40 0.10
cm3/1000 strokes	:		44.0
Tolerance cm3/1000 strokes	:	+-	3.0
Check tolerance cm3/1000S. Spreed	:	+-	6.0
Tolerance cm3/1000 strokes Check tolerance	:		8.0
cm3/1000s.	:		12.0